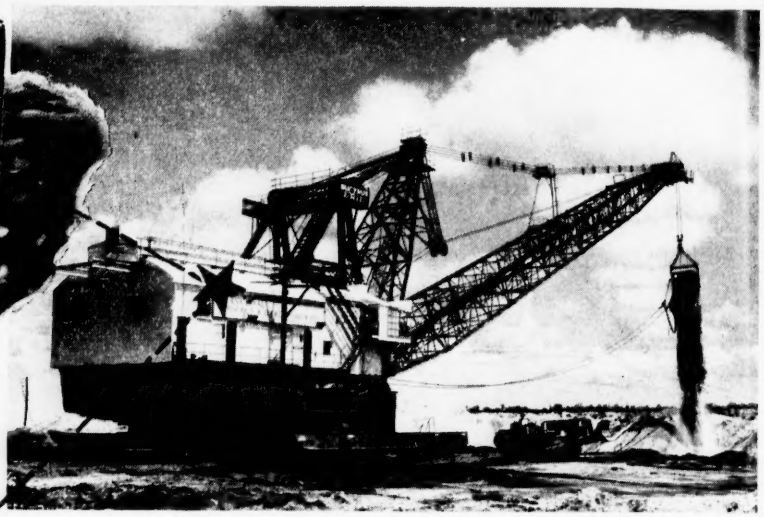
MANUFACTURERS Record

HOW INTERNATIONAL MINES LIFE GIVING PHOSPHATES AT ITS FLORIDA OPERATIONS

Men prospecting for phosphate

Field research establishes value of territory

Hydraulic water "guns" flush matrix into pipeline



Dragline used for removing overburden and mining matrix

For more than 38 years, International Phosphates . . . from the Florida and Tennessee fields . . . have played a major role in the health and welfare of our nation. The principal use of phosphate—one of America's most precious mineral resources—is in agriculture where its rich, chemical treasures contribute in an essential way to soil fertility. Without phosphorous, life as we know it would be impossible as the structure, growth and well-being of all things—plant, animal and man—depend on it for existence.

This is the first in a series of 3 pictorial descriptions showing primary operations in the Mining, Recovery and Preparation of International Phosphate Rock for use in industry and agriculture.

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MANUFACTURERS RECORD

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Volume 116 DECEMBER, 1947 Number 12

EDITORIALS

ARTICLES

DEPARTMENTS

COVER ILLUSTRATION—Lion Oil Co. recently placed its new Thermofor catyltic cracking unit in operation at El Dorado, Ark. to make a substantial addtion to the country's petroleum producing capacity as part of the record expansion being carried out this year and next by the American petroleum industry in the effort to cope with the soaring needs of both public and industry. The more than four billion dollars represented by the biennial program approximates twenty-two per cent of the eighteen billion dollar investment in the oil industry, which is understood to be the country's second largest. How long it takes to build a major oil industry project is demonstrated by the $1,500,000 Lion plant. Construction required just under twelve months. Scientific advances in petroleum processing equipment are sometimes so fast that a design that is the latest when construction is started may be out of date upon its completion. However, in the case of the Lion plant the latest features are embraced in its construction. Already, it has demonstrated the ability to maintain runs substantially in excess of its rated daily capacity of 4,500 barrels of fresh gas oil and 900 barrel recycling capacity.

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Southern Business Outlook

Factory output for the 16 Southern states continued to rise during the latest month with increases noted in both durable and nondurable goods. Minerals likewise climbed. Overall production showed a 4 per cent increase over the preceding month and topped the previous year's output by about 28 per cent.

Electric energy production fell off from its peacetime high of the preceding month and steel output showed a slight decline due to local disputes during the middle of the latest month. However, increases are shown in practically all other industrial indices.

Bank deposits, as reported by Federal Reserve member banks, were up $72 million and more than $2 billion greater than a year ago. Bank clearings in the latest month showed an increase of more than $500 million.

Increased fall buying, with a high demand for many durable goods, boosted retail sales 20 per cent for the month. Retail distribution, however, shows no significant increase over that of a year ago.

MONTHLY INDUSTRIAL ACTIVITY

(16 Southern States)

	Latest Month	*Preceding Month*	*Year Ago*
All Manufacturing (value)	$2,832,929,000	$2,713,686,000	$2,214,466,000
Durable Goods (value)	1,026,136,000	955,659,000	777,698,000
Nondurables (value)	1,806,793,000	1,758,027,000	1,436,767,600
Steel Output (tons)	1,093,791	1,123,121	1,050,039
Pig Iron Output (tons)	780,731	777,819	749,502
Cotton Consumed (bales)	638,821	628,233	720,450
Spinning Activity (1000 spindle-hrs.)	7,883,000	7,643,000	7,876,000
Pine Lumber Cut (board feet)	68,709,000	66,004,000	60,995,000
Electric Output (1000 kilowatt-hrs.)	6,757,562	7,504,369*	6,545,205
Construction Awards (value)	$ 167,222,000	$ 227,471,000	$ 163,884,000

FARMS AND MINERALS

Farm Marketings (value)	$ 678,722,000	$ 654,902,000	$ 658,921,000
Meat Production (head slaughtered)	1,403,600	1,125,400	1,247,200
Coal Output (tons)	27,343,000	25,512,000	25,821,000
Crude Petroleum Output (barrels)	106,288,150	101,320,500	92,533,450

FINANCE AND DISTRIBUTION

New Corporations (number)	2,160	2,053	1,940
Business Failures (number)	38	50	9
Bank Deposits	$9,829,000,000	$9,757,000,000	$7,767,000,000
Bank Clearings	$6,610,128,000	$6,098,298,000	$5,159,087,000
Retail Sales	$2,690,936,000	$2,232,989,000	$2,690,366,000
Caroladings	1,374,691	1,385,922	1,296,229
Imports (tons)	1,882,750	1,970,950	1,201,250
Exports (tons)	6,746,200	5,484,700	3,332,600

*Revised. Steel and iron data from reports of American Iron & Steel Institute; Pine Lumber from Southern Pine Association; Crude Oil from American Petroleum Institute; New business and business failures, Dun & Bradstreet; Carloadings, Association of American Railroads; Other data from U. S. federal agency statistics.

MANUFACTURING EMPLOYMENT

(Persons Employed)

	Durable Goods		*Nondurables*		*All Manufacturing*	
	Latest Month	*Preceding Month*	*Latest Month*	*Preceding Month*	*Latest Month*	*Year Ago*
Alabama	137,000	135,000	93,000	94,000	230,000	222,000
Arkansas	47,000	47,000	23,000	24,000	70,000	68,000
Florida	32,000	31,000	46,000	45,000	78,000	77,000
Georgia	70,000	69,000	181,000	183,000	251,000	246,000
Kentucky	63,000	62,000	67,000	68,000	130,000	126,000
Louisiana	58,000	58,000	85,000	85,000	143,000	129,000
Maryland	109,000	105,000	123,000	123,000	232,000	246,000
Mississippi	57,000	56,000	34,000	34,000	91,000	88,000
Missouri	150,000	149,000	207,000	210,000	357,000	349,000
North Carolina	88,000	90,000	279,000	285,000	367,000	362,000
Oklahoma	21,000	21,000	34,000	34,000	55,000	52,000
South Carolina	36,000	35,000	153,000	159,000	189,000	189,000
Tennessee	92,000	86,000	155,000	167,000	247,000	249,000
Texas	138,000	140,000	200,000	202,000	338,000	312,000
Virginia	69,000	68,000	147,000	144,000	216,000	211,000
West Virginia	86,000	85,000	49,000	50,000	135,000	131,000
South	1,253,000	1,237,000	1,876,000	1,907,000	3,129,000	2,875,000

Of the above tabulation, data for Florida are figures rounded to nearest thousand from the monthly statistical report of Florida Industrial Commission; Maryland, State Department of Labor and Industry; Louisiana, Louisiana State University, College of Commerce; North Carolina, State Department of Labor; Oklahoma, State Employment Security Commission; Tennessee, State Department of Employment Security; Texas, The University of Texas, Bureau of Business Research; Virginia, Department of Labor and Industry. In the absence of cooperative aid from other states, the remaining figures are result of monthly surveys by MANUFACTURERS RECORD.

Birmingham District

By R. W. KINCEY

Birmingham—Attention of the business and industrial world of the South was centered upon Birmingham last week when men of prominence from many walks of life were here for dedication of the Southern Research Institute's new laboratory addition.

Central figure in the one-day program was Dr. Charles F. Kettering (retired) head of the research laboratory of General Motors.

What Dr. Kettering had to say about research in general and about the great opportunities of the institute to delve into the vast storehouse of raw materials in the South was characterized by many in attendance as one of the greatest inspirational messages ever heard in this section.

The distinguished inventor and scientist expressed amazement that the Southern Research Institute, barely three years old, has been self sustaining except for its first seven months. He cautioned against discouragement and failure and he said the field is so broad that the entire scope of human knowledge lies ahead of man. This, he characterized, as the age of "golden opportunity, unlimited."

The institute's program including a dinner at night, dedication of the addition, and an open house for the public during the afternoon, was the first of two significant gatherings for the district within a week.

State Chamber of Commerce Meets

To Birmingham November 20 came some 500 of the state's leaders on another mission—to review activities of the Alabama State Chamber of Commerce for the year, to elect new directors and officers, and to chart an even more ambitious program for the year ahead. Special emphasis was placed on diversified production, and the organization's established objective of bringing agriculture and industry into better balance was dwelt upon at length.

On every hand there is increasing evidence that a more predominant civic spirit and consciousness is making itself felt in the affairs of the district and state.

As an indication, the district's technical societies likely will form a central committee to consult with the Chamber of Commerce on technical and metallurgical problems arising in its effort to locate new industries here. It is a spontaneous move, welcomed by all and highly potential for the district.

Steel production is at an estimated "103 per cent of capacity" with return to service of the eighth open hearth furnace by Republic Steel Corp. at Gadsden.

The move is a continuation of the program to put production abreast of demand, but that goal is in the indefinite future unless and until demand materially slackens off. This continues to be true not only of steel but of pig iron, despite record production schedules.

New Orders Booked

Orders continue to flow in uninterrupted volume. Among the largest ever placed in the district was one last week from the Louisville & Nashville Railroad which booked 76,000 tons of rails with the Ensley plant of Tennessee Coal, Iron & Railroad Co.

With accessories, the order is valued at approximately $6,700,000 and is for delivery in 1948. It calls for 132-pound rails, the heaviest rolled in the district, and among the heaviest ever to be laid in the South.

The Ensley schedule already is into the indefinite future. So are schedules of pipe plants. The Bessemer plant of Pullman-Standard Car Co. is well into 1948 with additional bookings likely.

Raw material shortages are hampering full scale production. There is little to indicate a change in that situation.

Overall trend in the area's labor market was described as generally healthy by the Alabama State Employment Service. The small gain in total estimated employment was accounted for almost entirely due to the seasonal rise in trade. Some further gain in total employment can be expected until the last week in the year. But most of it will be temporary for the holiday season.

Unemployment in manufacturing remained about the same with decreases in some industries offsetting increases in others. It definitely is a fact, however, that scarcity of raw materials has been felt in many lines. It is equally true that major payroll additions could and would be made were materials—steel and iron—in adequate supply.

Concern is expressed in many quarters over an apparent attitude of hostility on the part of the administration at Montgomery toward industry as far as taxation is concerned. Conservative observers emphasize that industrial development is being hampered by this feeling of misgiving on the part of some prospective new industries. A general clarification of that situation admittedly is in order.

Birmingham Personnel Changes

Of interest was announcement during the month that Vernon L. Turner has resigned as traffic manager after 17 years with Sloss-Sheffield Steel & Iron Company to become assistant traffic manager, George Cochran Traffic Bureau here.

Death claimed several of the district's widely known figures in industry, among them, J. Henry Arnold, general manager, Arnold-Brown Metals & Supply Co.; Alfonso Addington, plant superintendent, McWane Cast Iron Pipe Co., and Dan J. Reed, safety engineer for the Tennessee Coal, Iron & Railroad Co.

As a community enterprise and one that gives promise of showing definite and worthwhile results, smoke abatement continued along broadened lines.

Birmingham's Junior Chamber of Commerce is spearheading the effort with personal calls upon management representatives. A strengthened smoke abatement department, with increased personnel, will be sought from the City Commission.

The Southeast

By JOHN MEBANE

Atlanta—Despite high prices, the surge of building continues in the Southeast. Especially noticeable is the upturn in residential building in the metropolitan Atlantic area. Ground has been broken for a double apartment project in Fulton County which will cost approximately $6,000,000 and will provide 504 units in 85 buildings. On the heels of this disclosure has come the announcement of a $3,000,000 apartment project near Oglethorpe University.

Almost everywhere one turns in the metropolitan Atlanta area, he will find building under way. Much of this, too, will house new industries. The Agricultural and Industrial Development Board of Georgia reports that thus far this year, an average of 50 new industries a month—equal to last year's record—are being established in this state. The pattern is very similar in other states of the Southeast.

Industrial Diversification Proceeds

Industrial deversification is proceeding at a more rapid rate than ever before. Typical is a new plant which has just been established near Atlanta to manufacture "packaged" aluminum windows. It is the Metal Arts Manufacturing Co. Of particular interest is the fact that the new window was devised by an Atlantian; the entire project is being financed locally, and all of the officers are Georgians. In addition, the plant affords employment to persons living in its immediate area. Currently, it is turning out 250 aluminum windows a day and soon will step this up to 500 daily.

This typifies the continuing trend toward home ownership of industries in the South.

But although much of the Southeast is encouraging sound, locally-financed industrial and commercial enterprises, it still welcomes "outside" industries of a type needed in the region. For example, Clark Thread Co. has just formally dedicated in Albany, Ga., one of its big, new mills. On the eve of dedication,

John B. Clark, president of the company, presented the city of Albany with a check in payment for the land which the city had *given* the company for its site. It was, he said, in appreciation for the wholehearted cooperation of Albany with the company. As has been pointed out before, Clark Thread is moving its operations from New Jersey into Georgia.

Interest Shown in Foreign Trade

There is a greater interest being awakened in the Southeast now in the potentialities of postwar foreign trade. At the ports of New Orleans, Birmingham and Savannah, much activity is under way. In Georgia, there has just been organized a World Trade Council, headed by William H. Wilkerson, president of the Auto-Soler Co., which is engaged in a mounting export program itself.

According to Prof. B. U. Ratchford of Duke University, who spoke in Atlanta a few days ago before the Southern Economics Society, southern agriculture has experienced since 1929 important changes in the direction of a better balance, with less production for export and more for the home market. But he also pointed out that in 1945 and 1946 southern exports averaged $1,317,260,000—only about 6 per cent below the 1926-1929 average, although this figure was only 14 per cent of the United States total. He made this comment:

"Cotton and its products were still in first place (in 1945-46) with $560,338,000, although their relative importance was reduced to 42.5 per cent of the total. A significant point here is the tremendous increase in the value of semi-manufactured and manufactured cotton products. For these two years they were about 75 per cent of the value of raw cotton exports. . . . In fact, for certain months in early 1947 they exceeded raw cotton in value." He added, however, that this condition is temporary and reflects "the starved condition of the world for cotton textiles and the great amount of textile capacity that is temporarily out of operation." Then, Professor Ratchford made this significant comment:

"There can be little doubt that free trade under world conditions existing today would slow up if not stop the process of industrialization in the South and would probably give us a chronically depressed textile industry."

He believes that insofar as the South is concerned, exports will not regain the importance they had two decades ago. He also believes that "a policy of protection and limited trade should provide some encouragement to the continued industrialization of the South."

Labor Relations Improve

Labor relations appear to be improving in the Southeast. Strikes now in the hands of the Federal Mediation and Conciliation Service are at a record low in the region. District 4, a nine-state territory with Atlanta as its headquarters, listed in mid-November only three work stoppages of a type justifying federal intervention and fewer than 1,500 employes were involved. C. H. Williams, regional director of the mediation service here, believes that this decline in disputes is due, first, to a better understanding of the provisions of the Taft-Hartley Act, and second, to a more widespread acceptance and practice of collective bargaining by both labor and management. Others believe it marks the beginning of a new era of good relations between labor and management.

As for retail trade in the Southeast, the Federal Reserve Bank of Atlanta says that there are no indications that department stores "are embarking on inventory building programs similar to those of last year," despite stock increases during August and September. Sales of furniture and household appliances appear to be increasing over those for 1946, although jewelry sales appear to be declining somewhat. Cash sales at retail are below those for the corresponding period last year as open book and installment sales gain.

Farmers of the district, a checkup indicates, are spending their high incomes in betterment of their homes and improvement of their farms. They are buying things they have long needed, such as bathtubs, electric stoves, washing machines and the like for their houses. And they are investing considerable sums in farm machinery, which would appear to be in line with a trend toward larger farms supporting a smaller farm population. Farm machinery sales outlets report greater demands than ever before for all types of farm machines and equipment and say that a major factor involved in these demands is the extreme difficulty of obtaining adequate farm labor, much of which is moving off the farms and into the growing industries of the region.

As for employment, the Federal Reserve Bank of Atlanta in its "*Monthly Review*" asserts: "A number of factors promise to have a favorable influence on district employment and production in the near future. One of these is the near completion of two paper plants in the Savannah area, and the other is the completion of a large automobile assembly plant just outside Atlanta. The word called for by contracts awarded for ship conversion in Mobile, Ala., and for ship repair in New Orleans and by the progressive conversion of the Brunswick, Ga., shipyard to industrial use also may be expected to contribute to employment stability, if not to an increase."

September and October storms hit some crops in the Southeast severely, although the damage was not widespread, the *Monthly Review* points out. A third of the Louisiana rice crop was damaged heavily. Part of the sugar cane crop in Louisiana and Florida was hit. Mississippi and Louisiana pecan growers lost about a fourth of their prospective crops, and there was some damage to pecans in Georgia.

Wage Differentials Decrease

Increasingly, it is noted that wage differentials between the South and the North are narrowing. One reflection of this lies in the 9 per cent wage increase given southern textile mill workers during November. Industry is realizing, apparently, that the South has far more to offer than lower wages. There is a growing awareness of the advantages of climate, of plentiful natural gas and water resources, of a pool of skilled and semi-skilled labor in numbers far above that of prewar days and of growing markets within the region itself.

A sharp per capita income rise in the Southeast since 1939 has emphasized this section as an important consumer market. The fact that the aggregate gain in income has not declined since the end of the war is highlighting it even more. Another important factor in the region's ever-growing consumer market is the trend toward production of farm crops on such a basis that there will be cash income every month of the year, instead of only seasonally.

Although farm mechanization appears to be progressing slowly, its progress, nevertheless, is definite; and as it proceeds, the income per farm in the region inevitably will rise. Thus will grow the Southeast's importance as a market to consume not only its own products, but those of other areas as well.

Piedmont Area

By J. A. DALY

Charlotte—Uncertainties associated with world economic turmoil beclouded long-term prospects of Southeastern manufacturing and distribution early in December while Congress in extra session sought solutions of domestic inflation and foreign aid crises.

Despite the growing difficulties, the area's business and industrial picture continued brilliant. However, numerous executives of financial and manufacturing concerns suggested that the post-war boom is "topping out" for most major segments of Piedmont activity.

Intensified competition was reported from most sectors, despite tremendous production and scarcities in some lines.

Manufacturers reported that the Piedmont is passing the seasonal rail traffic peak without experiencing freight car shortages.

Federal statistical and Carolina financial agencies indicated that the Piedmont section, and the Southeast generally, is sharing adequately in the record national income, which the Commerce Department estimated for September at an annual $210,000,000,000 rate.

Pivot of the Piedmont merry-go-round as November ended was the hard-pressed electric power industry, which was operating at record rates and struggling with localized shrtages. Power production rates for companies operating in the Carolinas were reported officially at 25 to 30 per cent above 1945 levels.

Meantime, Duke Power must continue until Spring its large allocations of power to overburdened hydro-electric companies supplying the intensely industrialized central South Carolina. Virginia Power became involved in minor shortages but obtained some assistance from Carolina producers.

Power Companies Expand

Expansion of power producing capacity continued over systems operating in the Carolinas, but mostly these increases will be unavailable until mid-1948 or later.

Duke Power will start operations early in 1948 at a 100,000-kilowatt addition to its Cliffside, N. C., steam plant. This company announced that construction will begin early next year on a 140,000-kilowatt steam-electric plant near Lakesville, N. C. These expansions will increase Duke's coal consumption 500,000 tons annually.

Georgia Power, which serves many Piedmont area industries, announced that its three-year expansion program, to be completed by 1950, will cost $59,500,000.

Supplies of coal and fuel oil were adequate for Piedmont business and industry early in December though distributors expressed worry over situations expected to arise by midwinter.

Official figures gave as $407,438,443 the Federal internal revenue collections in North Carolina for the fiscal year's first four months, an increase of $36,953,298 over the 1946 period.

North Carolina Government revenue collections for the four months totaled $45,847,297, compared with $38,972,688 for the 1946 months. Wide gains in sales and gasoline tax collections reflected expansion in retailing and automotive operations.

Charlotte's postal receipts for ten 1947 months totaled $1,661,562, up $229,740 from the record 1946 level.

Unprecedented Textile Exports

Among Piedmont manufacturing industries, the dominating textile industry was placed in the "hottest spot" by Congressional deliberations related particularly to foreign trade. This industry is continuing to experience the unprecedented volume of export business that developed two years ago.

Now, however, for textiles the question is whether the Congressional world aid program will curtail exports of fabrics and expedite raw cotton shipments intended to rehabilitate European and Asiatic textile industries.

Quite a vigorous, largely undercover, preliminary contest between finished textiles producers and raw cotton exporters was in progress when Congress met.

Textile industry managements were alerted by the Washington Administration's advisory Harriman committee which in effect advocated government controls over exports of scarce materials—like cotton, for instance—with the view of combating domestic inflation. A 2,500,000-bale 1947 crop export limit on cotton exports was recommended. This year's U. S. crop will be about 11,500,000 bales; consumption, about 9,000,000 bales; total supply, slightly below 14,000,000 bales.

Shortages in longer staples are reflected in wide premiums over future quotations.

Pay Raise For Textile Workers

Most important recent news from the South's labor front was a nine per cent wage increase for practically all of the 550,000 Southern textile mill workers. Labor leaders estimated the industry's annual payroll boost at $110,000,000.

This advance per hour put hour textile wages at 87 cents minimum; 97 cents average and $1.11 maximum. Latest available North Carolina Labor Department data showed that 376,000 North Carolina manufacturing industry workers earned $35.71 weekly, or average wages of 95.5 cents per hour, in September, up 1.2 per cent over August, but non-manufacturing workers' average dropped to 77 cents per hour, off 3.3 per cent.

At the same time, labor demanded a 15 per cent raise for New England textile mill workers and for Atlantic Seaboard area woolen mill employees. Fear among general business of another wage-price spiral in textiles was aroused by labor's hints of another drive next Spring for additional wage raises by Southern textile mills.

Prices of nearly all types of cotton and synthetic-yarn textiles were raised—some as much as 5 per cent—to compensate for higher wage and raw material costs. Textile mills generally had sold their production far into 1948, some of them having liberally booked orders for third-quarter deliveries.

Unofficial tabulations in mid-November showed that 1,139,334 spindles and 18,936 looms were involved in Southern textile industry sales or mergers in the twelve-month period.

Average bid for a list of 60 textile mill common stocks late in November advanced to $113.03, compared with the midsummer low of $94.73.

Industry spokesmen emphasized that the textile industry will enter 1948 with unprecedented financial strength and will invest many additional millions of dollars in modernization and expansion. The Federal Trade Commission reported that for 1947's first quarter manufacturers of textiles led all divisions of United States manufacturing with a 6.6 per cent return on capital investment.

Parity Cotton Price Advances

Cotton's parity price was advanced to 29.64 cents per pound for the October-November period while the average spot market price advanced to 33¼ cents per pound, middling 15/16-inch staple by mid-November.

Accompanied by talk of shortages, prices of cottonseed and cotton oil advanced strongly in November along with chemicals required for commercial fertilizer.

Reflecting persistent acute shortages of housing, construction continued at unseasonally high rates. This maintained high-level retail and jobber sales of lumber, paints, roofings, light hardware, and miscellaneous building supplies. Scarcities were reported for various "bottleneck" items.

This situation aroused opposition in several North Carolina cities to enforcement immediately of conditional slum clearance laws.

Inventories of construction grades of Southern pine lumber were reported by trade organizations at 75 per cent of normal while finish-grade inventories were estimated at 25 per cent of normal. The Carolina Lumber & Building Supply Association (Charlotte) protested strongly to the Commerce Department against any relaxation of lumber export controls.

Municipal Bonds Active

Winston-Salem authorized $4,000,000 of bonds for construction of water system expansion. Mecklenburg County (Charlotte) revised plans for $2,000,000 of high school construction and Charlotte did likewise for a $4,000,000 program, for each of which funds are available.

York County, South Carolina, sold $1,500,000 of highway bonds. Gastonia, N. C., authorized sales of $930,000 of water, electric and sewer bonds.

South Carolina Baptist Hospital, at Columbia, completing a 100-bed addition, announced a $300,000 nurses' home project.

North Carolina and South Carolina governments awarded around $2,500,000 of additional highway construction projects.

Celanese Corp. of America announced that rapid progress assures that production can begin next July in the $40,000,000 eighteen-building synthetic yarn plant under construction at Rock Hill, S. C.

American Viscose Corp. officially revealed that this great rayon manufacturer hopes to have a North Carolina plant "soon." Burlington Mills announced a decision to build a $3,000,000 textiles finishing plant near Raleigh.

South Carolina's Development Board announced that Giant Portland Cement Co., Philadelphia, Pa., bought for $666,815 from the Federal Government the former Anchor Alumina plant at Harleyvills, S. C. GPC Co. said that 200 persons will be employed after completion of a one-year conversion program to provide an 800,000-barrel annual capacity.

Reports almost invariably said that late November operating rates were at or near capacity for miscellaneous manufacturing industries of the Piedmont, including electrical, machinery, shortenings, soft drinks, meat products, lumber milling, tobacco

products, shirts, work clothing and chemicals.

Demand for motor trucks eased slightly but continued brisk through November while consumer calls for new automobiles were insistent and used-car sales were fair at high prices. Tire prices were upped about 10 per cent and minor advances were forecast for 1948 models of cars.

Automotive service shops worked about at capacity.

Employment services reported a continuing scarcity of skilled labor and only a small unemployed common labor force.

Pre-Christmas Buying Heavy

Pre-Christmas buying began in heavy volume in Mid-November, stimulated by spectacular promotion events in most trade centers.

Household equipment dealers generally emphasized relaxed credit terms, but leaders in several organizations of Carolina retailers, particularly furniture, vigorously warned that liberal credits will create economic dangers.

Operators of department store chains reported late November retail volumes around 10 per cent above a year ago, dollar value. Advent of wintry weather expanded purchases of seasonal clothing. Demand for men's apparel items was declared satisfactory despite increases in prices, which in part reflected improved quality.

Manufacturers and retailers attributed to higher costs their increases of 5 to 20 per cent in bedding prices and 5 to 8 per cent in furniture and carpet prices. Demand for these goods was steady and supplies expanded. Scattered plants in the extensive North Carolina furniture manufacturing industry announced wage raises of around 10 per cent.

Commercial Loan Increase Continues

Piedmont area bankers reported that commercial loans continued their steady increase to levels far above a year ago. Deposits also expanded slowly and bank clearings held around record levels despite narrowed increases over comparable 1946 weeks.

Complaints regarding the high cost of living were voiced widely by representatives of consumer groups, particularly spokesmen who reflected views of the "squeezed" white-collar class.

November brought a crisis for Carolina tobacco growers that remained unsolved late in the month. This resulted from England's embargo upon imports of American tobacco. U. S. Government and British agencies became stalemated in efforts to evolve a program to relieve the tobacco marketing problem. Meantime, the Department of Agriculture allocated an additional $25,000,000 for tobacco price stabilization purchases and, after a marketing "holiday," price levels improved moderately and irregularly as the season neared its close.

Several leaders of Carolina growers urged a 1948 acreage cut of 30 per cent. Other spokesmen favored a 20 per cent cut, insisting that the proposed 30 per cent reduction would decrease North Carolina's total tobacco marketings next year by $101,000,000. This state's 1947 flue cured leaf sales were estimated at 18 per cent below the record 1946 total of $451,000,000. The state's production of 887,000,000 pounds is 67 per cent of the American flue cured 1947 crop, according to growers' statisticians.

Official figures put South Carolina's tobacco sales this season at 133,673,176 pounds for $55,853,046, compared with 150,954,510 pounds and $73,589,280 for 1946. The average price was $41.78 per hundredweight, down $7 from the 1946 average.

Other official data disclosed that Carolina border belt tobacco sales were 297,919,842 pounds, off 38,700,000 pounds from 1946, and the average price of $41.84 was down $7.69.

The Southwest

By DAN SUMMERS

Dallas—Mineral production in Texas has shown a consistent increase among the low priced bulky materials, according to Dr. J. T. Lonsdale, director of the Bureau of Economic Geology at the University of Texas.

The history of some bulky products is related directly to the petroleum industry, he pointed out, and referred to bleaching clay, a million dollar industry in Texas which has depended almost entirely on refining technology for its development.

Recent trends and developments in the mineral industries of Texas were listed by Dr. Lonsdale as: (1) an increasing use of agricultural limestone; (2) extension of graphite production into the post-war period in the face of at least some foreign competition; (3) expansion of ground soapstone production; (4) revival of East Texas iron mining, which will be detailed later in this article: (5) construction of one additional rock wool plant, one lime plant, two clay expansion plants, and several plants for the manufacture of heavy clay products; (6) production of a small amount of gold for the first time in several years; (7) failure of quicksilver production for the first time since 1899; (8) substantial production of glass and manufacture of glass in plants at Waco, Wichita Falls and Palestine (another plant is being constructed at Corpus Christi); active interest in metal deposits of West Texas with reported discovery of sizable deposits of lead, silver and zinc.

Texas Pig Iron Output

Perhaps the most significant mineral news to come out of Texas in years was the pig iron production which began moving out of the 1,200-ton furnace at Daingerfield, in Northeast Texas. Six years ago East Texas businessmen sought to build the blast furnace. Today, with unlimited quantities of the ores surrounding the plant, limestone from West Texas and coal from the mines of Southeastern Oklahoma, the Lone Star Steel Co. has made what Congressman Wright Patman describes as "the greatest forward step that has been made in the industrialization of this great empire since the discovery of oil and coming of the railroads."

Housing agencies will receive the entire production of the plant until it reaches two-thirds of the 1,200-ton capacity daily. E. B. Germany, Dallas oilman and president of the company, said promised deliveries to individual firms probably can not be made until early next year. Ford Motor Co. and Kaiser-Frazer have sought a part of the plant's output.

John W. Carpenter, who threw his time and money into the project in its early promotional stage, is chairman of the board.

Frank Wilkes, president of Southwestern Gas and Electric Co., urged East Texans in a talk at Kilgore to support development of this steel industry in Texas but not blind their eyes to the many other industrial opportunities fronting them. He suggested chemical plants for manufacture of plastics and plastic bases and at least one or two more paper mills like the plant at Lufkin.

Mr. Wilkes, whose company is expanding to meet the expected demands of growing industry in East Texas, Northwest Louisiana and Southwest Arkansas, said it is not necessary to import capital here.

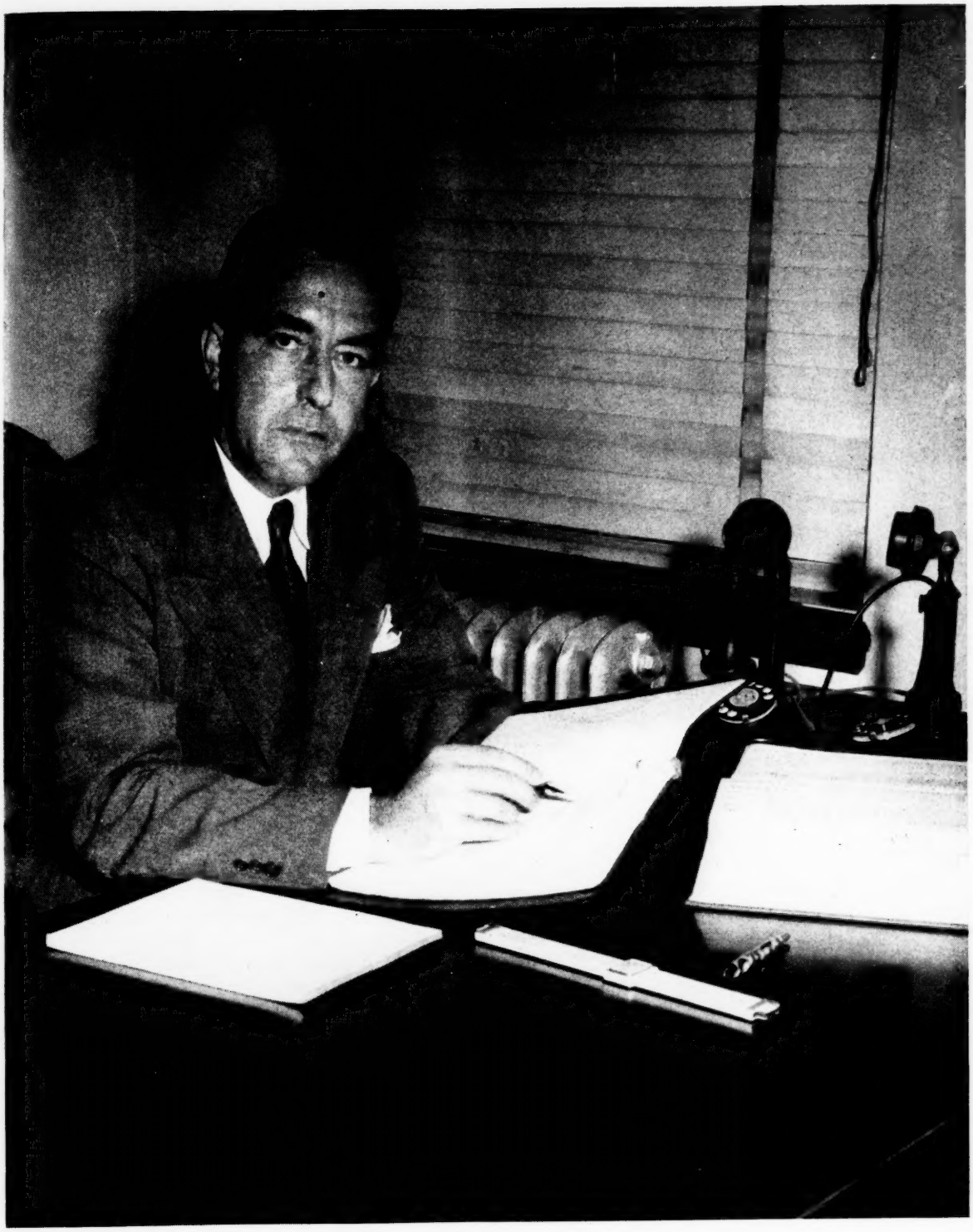
He said the area, rich in resources, has the raw materials for many chemicals, including cut-over timber for use as pulp or as a base for plastics. The area's possession of 85 per cent of known gas reserves was also pointed out.

Oklahoma Lead Plant Cited

Oklahoma, when speaking of mineral resources, points with pride to the huge Eagle-Picher plant in the northeast section of the state. Although there are no plans by the mining and smelting company for expansion in the Sooner state, production is at full gear and at Joplin, Mo., the firm is operating a well-equipped research laboratory, together with insulation and metal plants. Interests of the firm also extend into Galena, Kan., where a lead smelter plant completes the widespread activity of the company in the Tri-States (Oklahoma-Kansas-Missouri) area. The firm owns the largest zinc concentrating plant in the world plus numerous lead and zinc mines. As equally busy is the zinc smelting plant operated by Eagle-Picher at Henryetta, Okla. Present plans of the company call for expansion of facilities for extraction of rare metals at the Joplin plant.

Industrial news has swollen considerably in Oklahoma with the most recent move of the Oklahoma Planning & Resources Board for promotion of a more intensified industrial campaign which is inviting eastern manufacturers to inspect the state for

(*Continued on page 60*)



The services of this industrial engineer, or one of equal skill, are available without cost or obligation to help you develop economic studies of Alabama if you are considering the establishment of a plant in the South. Write Industrial Development Department, Alabama Power Company, Birmingham 2, Alabama. All correspondence and discussions confidential.

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NEW AND EXPANDING PLANTS

COMPILED FROM REPORTS PUBLISHED IN THE DAILY CONSTRUCTION BULLETIN

ALABAMA

ANDALUSIA—Covington Electric Cooperative, improvements and 528 miles of distribution lines, $1,080,000.
ANNISTON—Tape-Craft, Inc., building and installation of additional machinery, $80,000.
ATMORE—Gilbert Brereton, New Orleans, La., degumming plant for processing of ramie.
BIRMINGHAM—American Rock Wool Co., plant, $400,000.
BIRMINGHAM — Baggett Transportation Co., Inc., warehouse, $116,880.
BIRMINGHAM—W. J. Bullock Co., bathhouse and chemical laboratory, $111,978.
BIRMINGHAM—Hightower Box and Tank Co., rebuilding oak flooring unit, $101,000, machinery, $75,000.
BIRMINGHAM — L & N Railroad, 76,000 tons of rail, $6,700,000.
DECATUR—Goodyear Decatur Mills, boiler plant addition.
FLORALA—American Tung Mills, Inc., replacing mill destroyed by fire.
GADSDEN — Southern Bell Telephone and Telegraph Co., basement and two-story building.
GROVE HILL—Central Electric Refrigeration Corp., improvements in refrigerated locker plant, $12,000.
MOBILE — Chickasaw Mills, water treatment plant, new pumping station, and three and one half miles of steel underground pipeline, $1,000,000.
MOBILE—Louisville & Nashville Railroad, passanger terminal.
MONTGOMERY — Alabama Electric Cooperative, $5,516,000 for installations.
MONTGOMERY—Alabama Gas Co., expansion program, $1,000,000.
MONTGOMERY — Coca-Cola Bottling Co., additions to existing buildings.
MONTGOMERY—Southern Farmer, newspaper plant, $89,953.
TALLAHASSEE—City, natural gas system line, $177,035.
TUSCUMBIA — Lawrence Chevrolet Co., building, $60,000.

ARKANSAS

AUGUSTA—Woodruff Electric Cooperative Corp., 309 miles of line, $437,000.
CONWAY — A. D. Herr, Seattle, Wash., crate factory.
FAYETTEVILLE—A. C. Lime and Gravel Co., enlarge chat, gravel and limestone plants.
FAYETTEVILLE — Ozark Rural Electric Cooperative Corp., 336 miles of line, $705,000.
FORT SMITH — Arkansas Box Co., new plant and machinery.
LITTLE ROCK — Phillips Petroleum Co., producing plant and pipeline properties.
MAGNOLIA — Home Ice Cream Co., ice manufacturing plant, $75,000.
NORTH LITTLE ROCK—American Furniture Co., furniture factory.

FLORIDA

BARTOW — Armour Fertilizer Works, triple super-phosphate plant, $500,000.
BLOUNTSTOWN — City, 300 horse-power engine, $50,000.
BUNNELL—Lehigh Portland Cement Co., cement plant near Bunnell.
CORAL GABLES — Giffen Roofing Co., warehouse and office, $25,000.
DADE COUNTY—Standard Oil Co., warehouse and storage shed at 1000 NW 73rd St.
DADE COUNTY—Texas Co., service station, 2721 NW 42nd Ave., $20,000.
FORT PIERCE—O'Quinn Motor Co., automobile agency and garage building, NW corner Ave. B and 4th St.
LAKELAND — Grimer Waters, sales and service building, $60,000.
MIAMI — Elkay Distributors, Inc., cold storage plant, 2550 NW 23rd St., $100,000.
MIAMI BEACH—Florida Greyhound Lines, bus terminal, 638 Collins Ave.
MIAMI BEACH—Miracle Mi'nit-Man, Inc., laundry building, 535 Alton Rd., $12,000.
NEW SMYRNA — New Smyrna Builders Supply Co., office and show room, $20,000.
OCALA—Bailey Motor and Equipment Co., building, May St., $40,000.
OCALA — Swift and Co., additional cold storage rooms.
PENSACOLA—City, factory building, $12,487.
VENICE — Sarabay Frozen Foods, Inc., plant, $100,000.

GEORGIA

ALBANY — Dixie Leather Manufacturing Co., plant.
ATLANTA—Belle Isle Enterprises, alterations to office building, $75,000.
ATLANTA—Bernard South, Inc., office and warehouse, Piedmont Ave.
ATLANTA—George D. Brown, garage and service building, Harris St.
ATLANTA—Cluett, Peabody and Co., Inc., warehouse building on Murphy Ave.
ATLANTA — Maynard Johnston & Co., garage and service buildings.
ATLANTA — Southern Co., construction program.
ATLANTA — Firestone Tire and Rubber Co., warehouse and office building.
CLARKSVILLE—Habersham Electric Cooperative, 157 miles of lines, $75,226.
COVINGTON — Snapping Shoals Electric Membership Corp., 150 miles of line, $198,163.
CUMMING — Forsyth Electric Membership Corp., headquarters building.
DECATUR—Morgan Cleaners, dry cleaning plant.
DECATUR—Southern Bell Telephone and Telegraph Co., addition.
DECATUR—C. G. Washburn, Sr., auto sales and service building.
DOUGLAS—American Supply and Equipment Co., overall plant.
DOUGLAS—Douglas Corp., factory.
GRIFFIN—Ed Smith Chevrolet Co., garage building, $61,618.
JASPER — Amicalola Electric Membership Corp., 56 miles of line, $335,000.
LYONS — Altamaha Electric Membership Corp., 153 miles of line, $137,634.
MACON—Binswanger and Co., warehouse.
NAHUNTA — Okofenoke Rural Electric Membership Corp., 283 miles of line, $440,000.
PALMETTO—Palmetto Cotton Mills, addition to mill.
SAVANNAH — Savannah Machine and Foundry Co., building for non-ferrous foundry, $150,000, improvements on dock and piers, $100,000.
THOMPSON—Johnson Motor Co., building.

New and Expanding Plants Reported:

November—248

The Year 1947 to date—2916

TIFTON—Armour and Co., assembly and shipping addition.
VALDOSTA—Strickland Cotton Mills, alterations and additions to cotton mills near Remerton, $139,500.

KENTUCKY

BARBOURVILLE—Petroleum Exploration Co., 33-mile natural gas pipeline from Himyar to Oneida, $1,000,000.
BOWLING GREEN—Warren Rural Electric Cooperative Corp., 22.5 miles of line, $11,863.
LAWRENCEBURG — Fox Creek Electric Cooperative Corp., 166 miles of line, $54,439.
LOUISVILLE—Kentucky Bus Lines, bus center, 215 W. Liberty, $125,000.
LOUISVILLE — Ballard and Ballard Co., new buildings.
McKEE — Jackson County Rural Electric Cooperative Corp., 101 miles of line, $32,893.
SOMERSET — International Minerals and Chemical Corp., chemical plant, $100,000.

LOUISIANA

ALEXANDRIA — Thompson-Slatter Motor Co., sales and service building, $79,000.
CHALMETTE — Magnolia Petroleum Co., warehouse and dock, $45,000.
COUSHATTA — Williams and Strange, building at north junction of highway 71, $35,000.
CROWLEY—Crowley Farm Implement Co., building on north Parkerson Ave., $75,000.
DEMOPOLIS — Black Warrier Electric Membership Cooperative Corp., 83 miles of line, $230,000.
DONALDSONVILLE—Elray Kocke Service, Inc., building on Mississippi St.
DONALDSONVILLE—V. Bourg, Jr., dried shrimp packing plant.
EUNICE—Gulf Public Service Co., Inc., ice plants and ice plant improvements, $200,000.
LAFAYETTE — Clay Dalferes, tobacco warehouse and office.
LAFAYETTE — Lafayette frozen food locker plant addition.
NEW ORLEANS—Jackson Brewery, six-story brick building.
NEW ORLEANS—Standard Oil Co. of New Jersey, two buildings.
RUSTON—State Police radio station.

MARYLAND

ANNAPOLIS — Anne Arundel Farm Cooperative, cold storage locker and storage plant, $119,650.
BALTIMORE—Harry Abell, garage, showroom and filling station, 6212 Reisterstown Rd., $10,000.
BALTIMORE — American Bitumuls Co., tank pads and fire walls, $17,000.
BALTIMORE—Anderson Motor Co., addition to building, 4918 Edmondson Ave.
BALTIMORE—Baugh Chemical Co., addition to dressing room, Clinton St., $15,000.
BALTIMORE — Brooks Warehouse Corp., trucking terminal, 4600 Gough St., $80,000.
BALTIMORE—Black and Decker Manufacturing Co., storage warehouse, south side M. & P. R. R., $40,000.
BALTIMORE — Chesapeake and Potomac Telephone Co., construction and improvements, $1,826,000.
BALTIMORE—Corkran and Hill Co., office building.
BALTIMORE—Harry Dale, building, 5734 Falls Rd., $12,000.
BALTIMORE—Eastern Iron and Steel Co., addition to plant, $12,000.
BALTIMORE—General Motors Co., Hertz drive-ur-self service building, Key Highway and Battery Ave.
BALTIMORE—Globe Brewing Co., alterations and additions, Charles St., Perry St., and Hanover St., $191,062.
BALTIMORE—Hearst Radio, Inc., Station WBAL, tower and footings for television equipment, $28,265.
BALTIMORE—Hendler Creamery Co., addition to plant, 1100 E. Baltimore St., $14,000.
BALTIMORE—Wm. E. Hooper and Sons, Inc., research laboratory, 3500 Parkdale Ave., $25,000.
BALTIMORE—Lord Baltimore Filling Stations, Inc., three service stations: Hollins St., Mulberry St., Light St.
BALTIMORE—A. K. Robins & Co., branch plant, Key Highway and Battery Ave.
BALTIMORE—Rubber Millers, Inc., factory, $15,000.
BALTIMORE — Sheet Metal Fabricators, Inc., office building and shop, 1700 Friendship St., $35,000.
BALTIMORE—Charles A. Spann, service station, 4220 Erdman Ave., $20,000.
BALTIMORE—Standard Oil Co. of New Jersey, addition to power plant, $20,000.
BALTIMORE—Swift and Co., office building, 1030 S. Dukeland Ave., $50,000.
BALTIMORE—United Iron and Metal Co., two buildings and crane runway, $45,000.
BALTIMORE—Texas Co., service station, Potee St. near Belle Grove Ave.
BALTIMORE — Harry C. Weiskittel Co., Inc., gas range storage building, 4901 Pulaski Highway, $15,000.
BALTIMORE — Radio Station WFBR, transmitter station and tower, Edmondson Ave.
BALTIMORE COUNTY—City Baking Co., plant, Harford Rd and East Ave., $100,000.
BALTIMORE COUNTY—Henry J. Weber, filling station, Harford Rd. and Richmond Ave., $10,000.
COCKEYSVILLE — Equitable Trust Co., manufacturing plant, Beaver Dam Rd., $17,000.
COCKEYSVILLE—Williamson Veneer Co.,

(Continued on next page)

NEW AND EXPANDING PLANTS

(Continued from preceding page)

platform bases and silos, York Rd., $10,000.
CURTIS BAY—Maslow Cooperage Corp., addition.
DENTON—Choptank Electric Cooperative, Inc., 137 miles of line, $73,556.
FEDERALSBURG—Chesapeake and Potomac Telephone Co., five miles of aerial cable, 464 poles, 156 single miles of wire, $40,000.
FORK — Chesapeake and Potomac Telephone Co., cables, poles, wire, $53,000.
LANSDOWNE — Westinghouse Electric Corp., building on Washington Blvd., $28,438.
ODENTON — Saran Yarn Co., one-story plant.
WALDORF — Southern Maryland Electric Cooperative, 16 miles of transmission lines, $238,960.

MISSISSIPPI

EUROPA — City, glove manufacturing building, $100,000.
HOLLANDALE — Twin County Electric Power Association, 150 miles of line, $51,525.
LOUISVILLE—City and Winston County, furniture factory and glove factory, $250,000.
MERIDIAN — Key Field, Administration Building, $53,000.
NEW ALBANY — City, rehabilitation of electrical distribution system.
ONATON—Campbell Motor Co., addition to building, South Liberty St.
OXFORD—North East Mississippi Electric Power Association, new lines, $400,000.
POPLARVILLE—Love Motor Co., remodeling brick building, $20,000.
TAYLORSVILLE—Southern Pine Electric Power Association, system improvements and headquarters facilities, $1,090,000.

MISSOURI

BUTLER—Osage Valley Electric Cooperative, 224 miles of lines, $620,000.
GENEVIEVE—Genevieve Electric Cooperative, 124 miles of line, $66,341.
POTOSI—Brown Shoe Co., one-story warehouse and beef dipping plant.
ST. LOUIS — Acme Chair Co., one-story shipping room, 3230 Washington, $25,000.
ST. LOUIS—Anheuser-Busch, grain storage bins, 927 Pastalozzi, $80,000.
ST. LOUIS—Barada and Page, Inc., storage and distribution plant, Second and Penrose Sts., $150,000.
ST. LOUIS—Robt. Baskowitz, Inc., modernizing warehouse and office buildings.
ST. LOUIS—Carlson Transfer Co., garage, $12,000.
ST. LOUIS—Century Electric Co., factory, 1826 Olive, $154,000.
ST. LOUIS—Coca-Cola Bottling Co., alterations to loading dock, 2930 North Market St.
ST. LOUIS — General Fireproofing Co., warehouse addition, $20,000.
ST. LOUIS—Griesedieck Bros. Brewing Co., fermenting cellar, 2322 Lemp Ave., $750,000.
ST. LOUIS — The Guild, Inc., plant and offices, $100,000.
ST. LOUIS—Herman Body Co., paint shop and vault, 318 N. 8th St.
ST. LOUIS—Hinde-Dauch Paper Co., alterations to factory, $10,000.
ST. LOUIS—A. B. Lambert, garage, 3551 Bernard, $13,000.
ST. LOUIS—Lindell Moving and Storage Co., alterations to front of building.
ST. LOUIS—R. L. Marten, addition to warehouse, 207 N. Compton.
ST. LOUIS—Mickelberry's Food Co., alterations to welfare and storage rooms, $12,000.
ST. LOUIS—H. N. Saylor Co., factory and office, 2828 Brannon Ave., $60,000.
ST. LOUIS—Andrew Schaeffer Co., plant at Clarence and Natural Bridge Aves., $75,000.
ST. LOUIS—Joe Simpkins, Inc., truck display building, 6415 Easton Ave.
ST. LOUIS—Southern Equipment Co., addition, 5232 S. 38th St., $10,000.
ST. LOUIS—Tex-O-Kan Flour Mills Co., flour milling plant, Nagle and Quincy Sts.
ST. LOUIS—Thomas Pontiac, Inc., addition to auto sales building, 5190 Delmar.
ST. LOUIS—C. R. Watkins, reducing four-story warehouse to two-story, 7217 S. Broadway, $12,000.
ST. LOUIS—Zonolite Insulation Co., warehouse, 1515 Sulphur, $10,000.
SAVANNAH—Northwest Missouri Electric Cooperative, 170 miles of lines, $476,000.
SPRINGFIELD — MFA, fertilizer plant, Glenstone and Mill, $300,000.

NORTH CAROLINA

ASHEBORO—Standard Tytape Co., additional unit on present plant site.
CHARLOTTE — Baker Equipment Engineering Co., Inc., building, 2401 Hutchison Ave., $90,000.
CHARLOTTE—Johnson Motor Lines, expansion program, $250,000.
DOBSON—Surry-Yadkin Electric Membership Corp., REA project.
EDENTON — Electric and Water Board, electrical facilities.
ENFIELD — Halifax Electric Corp., 179.2 miles of line, $61,351.
FARMVILLE—Electric Membership Corp., REA project.
GASTONIA—Textiles, Inc., modernization program, $1,500,000.
GREENSBORO — Southern Oxygen Co., oxygen and acetylene manufacturing plant, $75,000.
HIGH POINT — Carolina Coach Co., bus station, West Broad and Lindsay Sts.
HIGH POINT—Slane Hosiery Mills, Inc., hosiery mill.
RALEIGH—News and Observer, brick station, $20,000.
STANLEY—Stanley Mills, Inc., two-story addition to plant.
WADESBORO—Pee Dee Electric Membership Corp., REA project.
WILMINGTON — Atlantic Coastline Railway, central heating system for office and shop buildings.
WINSTON-SALEM — Davis Miller Motors, Inc., addition at 1033 N. Liberty St., $17,000.

OKLAHOMA

BLACKWELL — Kay Electric Cooperative, 170 miles of lines.
CHEROKEE—Alfalfa Electric Cooperative, 308 miles of lines, $530,000.
HOLLIS — Harmon Electric Association, Inc., 205 miles of lines, $31,745.
MILL CREEK — Pennsylvania Glass Sand Corp., expansion and improvements for manufacturing glass sand.
OKLAHOMA CITY—Safeway Co., Oakland, Cal., several structures to house various enterprises.
TULSA—Refinery Supply Co., new building facing Kenosha Ave.

SOUTH CAROLINA

CHARLESTON—Terminal building, municipal airport.
CHARLESTON — Miserendino Motor Co., remodel building.
COLUMBIA—Southern Bell Telephone and Telegraph Co., exchange addition, $215,000.
EDGEFIELD — Industrial Development Corp., concrete block and steel construction, $62,965.
FORT MILL — Springs Cotton Mill, addition to plant, $1,000,000.
GAFFNEY—Cherokee Radio Co., 250 watt station.
HAMPTON-BEAUFORT — Palmetto Electric Cooperative, Inc., 139 miles of lines.
LIBERTY—Easley Mills, community building.
MARION — Marion Electric Cooperative, Inc., 62 miles of lines, $23,079.
MONCKS CORNER—Berkley Electric Cooperative, Inc., 31 miles of lines in Berkley and Charles counties.
MONCKS CORNER—S. C. Public Service Authority, garage and repair shop.
NEWBERRY—Newberry Electric Cooperative, Inc., REA project, $33,475.
NEWBERRY—Weir Mills, Inc., manufacture print cloth, $20,000.
SPARTANBURG—Herbert J. Freezer Co., shirt manufacturing plant.
SPARTANBURG—J. Roy Pennell, warehouse.
SPARTANBURG — Beard Laney, Inc., establishment of trucking terminal.
SUMTER — Black River Electric Cooperative, 317 miles of lines.
UNION—Monarch Mills, office building.

TENNESSEE

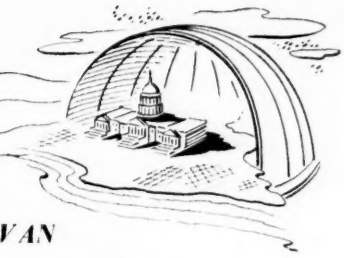
BROWNSVILLE — Southwest Tennessee Electric Membership Corp., 151 miles of lines, $475,000.
KNOXVILLE—Royal Crown Bottling Co., bottling plant and warehouse, $250,000.
KNOXVILLE — Standard Knitting Mills, Inc., three-story building.
McMINNVILLE—Caney Fork Electric Cooperative, Inc., 181 miles of line, $214,254.
NASHVILLE — Corps of Engineers, turbines, governors, and accessories for Center Hill power plant.
NASHVILLE—Neuhoff Packing Co., processing building, $100,000.
ROGERSVILLE — Holston Electric Cooperative, 150 miles of lines, $101,267.
SAVANNAH—Tennessee Valley Electric Cooperative, 223 miles of lines, $440,000.
SOMERVILLE — Chickasaw Electric Cooperative, 176 miles of lines, $59,119.
UNION CITY — Paul Nailling Implement Co., razing old, and erecting new structures.

TEXAS

AMARILLO—Llano Cemetery Association, addition to mausoleum, $100,000.
AMARILLO—Truitt Buick Co., building, $118,785.
BEAUMONT — KFMD Studios, building, $90,000.
BEAUMONT — Southwestern Bell Telephone Co., addition.
BISHOP — Celanese Corp., office building, $90,000.
BLUEGROVE—J. A. C. Electric Cooperative, 197 miles of lines, $44,648.
CORPUS CHRISTI—Dean Auto Co., service station and garage building, $20,000.
CORPUS CHRISTI—Steel Engineering Co., buildings, $500,000.
CROCKETT—Houston County Electric Cooperative, 120 miles of lines, $220,000.
DALHART—Rita Blanca Electric Cooperative, 228 miles of lines, $61,995.
DALLAS—Coca-Cola Bottling Co., bottling plant, Lemon Ave. and Atwell St., $1,500,000.
DALLAS—Ford Motor Co., conversion program, $1,000,000.
DALLAS — Dallas Power and Light Co., construction program, $16,523,950.
DALLAS — Southwestern Bell Telephone Co., building addition, $1,000,000.
DALLAS — Texas Lightweight Aggregate Co., building addition, $100,000.
DALLAS—B. V. Vernon and Granville Lane, addition to building, $40,000.
DECATUR—Wise Electric Cooperative, 183 miles of lines, $250,000.
DENISON—George C. Stratton, auto sales and service building.
FLOYDADA — City, engine generator unit.
FLOYDADA — Floyd County Rural Elec-

(Continued on page 74)

Potomac Soundings



by LAWRENCE SULLIVAN

Measuring Aid for Europe

The report from the President's Council of Economic Advisers is noteworthy for the fact that it apprises the special session of Congress exactly what the reconstruction of Europe is to mean to the American economy in terms of food, coal, petroleum, iron and steel, farm equipment, industrial machinery and medical supplies. Roughly, 67 per cent of the Marshall Plan, as now under legislative discussion, centers in these principal categories of export.

For the four calendar years 1948-51, the reconstruction program calls for $20,400,000,000.

Methods of procurement and assignment still are to be worked out in detail. But the over-all job is outlined in the estimate of $5-billions a year for the next four years.

Total exports to these countries during 1947 will aggregate approximately $5.6-billions, making the five-year total $26-billions, or approximately one-half the total lend-lease shipments for the years 1942-46. Thus, the Marshall Plan is in essence a proposal to continue lend-lease at half scale for four more years.

This scale of give-away exports frankly contemplates some restoration of domestic distribution controls in the principal export items. These controls may run even to a partial reestablishment of OPA, not as a separate administrative agency, but within the Department of Commerce.

Here is the significant passage from the report of the Council of Economic Advisers which clearly foretells the attempt to restore price controls and distribution allocations at home:

"Several of these products, particularly grain, steel and a few items of equipment, are of key importance for any program of European recovery and are in short supply on the domestic market. The central problem is that of preventing price rises due to these specific shortages from spiraling into a wider inflationary movement. A secondary, but still important problem, is that of *exercising some control over use*, in the case of food on grounds of equitable impact on the consuming public, and in the case of steel in order to meet the most urgent needs both at home and abroad."

Here is how the Council of Economic Advisers calculates the Marshall Plan exports for the four years 1948-51 inclusive:

Food and fertilizer	$5,400,000,000
Coal	700,000,000
Petroleum products	2,200,000,000
Iron and Steel	1,200,000,000
Mechanical equipment	4,500,000,000
Basic raw materials	6,400,000,000
Total	$20,400,000,000

Three specific proposals are before Congress: (1) government allocations covering the principal export commodities, coupled with rigid export controls; (2) elimination of all speculative operations in commodities declare in short supply; and (3) restoration of wartime limitations on consumer credit at banks and finance companies.

In view of the far-reaching considerations of national policy involved in the four-year program, Congress is disposed to approve some short-term stop-gap relief appropriations for Europe during December. The larger problem of the Marshall Plan will not be taken up formally until the regular session begins in January.

Will America Make the Sacrifice?

Challenging the report of the President's advisers at every major point, the Foundation for Economic Education publishes an impressive 100-page book under the title *Will Dollars Save the World?* This arresting study, by the noted economic analyst Henry Hazlitt, drives home the fact that if the U. S. undertakes the Marshall Plan, it must do so with full and complete popular understanding of the great sacrifices involved.

These sacrifices will be measured chiefly in either of two ways—in soaring prices for food and all basic industrial commodities, or in sharp curtailment of domestic consumption in every line.

Mr. Hazlitt wisely admonishes that the degree of personal sacrifice to be expected in America without strong measures of bureaucratic regimentation and compulsion may be slight. Whereupon the question arises: Will Congress and the people submit to a restoration of wartime controls and allocations for purposes short of actual victory in a shooting war?

Obviously, this question must be answered soundly before any foreign reconstruction program is put in final form; for enactment of a program which did not command overwhelming popular support would be calamitous. It would lead to rampant black markets and thus feed the all-consuming fires of inflation.

Hazlitt reminds us that the American and British Zones of Germany will produce approximately 2,800,000 tons of steel in 1947, as compared to 17,800,000 tons in 1938. These figures measure fairly, for all practical purposes, the general reduction in all Europe's industrial economy, of which Germany was the hub.

"The industrial paralysis deliberately imposed on Germany by Allied policy has forced Great Britain and the U. S. to pay the Germans reverse reparations. America has had to pour in foodstuffs to check starvation and disease. . . . The worst situation is undoubtedly in the Russian Zone. Under the Potsdam Agreement (July 1945), the Eastern Zone of Germany, which grew the foodstuffs on which the Western Zones depended, has been cut off by the iron curtain. From behind that curtain we catch only brief and obscure glimpses of the Russian looting, collectivization and terror which have disorganized production in that area and prevented it from either helping or being helped by the industrial output of the Western sections."

Half of the industrial equipment in Holland, for example, is of German manufacture. No repair parts have been available for five years. One broken machine often slows down an entire factory. In greater or less degree, the same situation prevails in France, Switzerland, Belgium, Denmark, Sweden, Italy, Turkey.

"It is grimly ironic," Hazlitt concludes, "that many of the same people who now tell us that we must pour our money and goods into Europe because European revival is essential to our own security, are the very people who have been the most insistent on the policies that make and keep Germany an economic vacuum. For the great obstacle to German recovery today is not the destruction and dislocation of the war, huge as these were. It is the carving up of Germany and the present policies imposed on her by the Allied occupation forces."

These observations by an eminently qualified commentator afford a glimpse of the profound issues in foreign policy which are presented in the Marshall Plan. It appears unlikely that any considerable segment of American opinion might support a $20-billion reconstruction program before correcting the fundamental policy which is the root of Europe's ever deepening crisis.

Until the basic productive resources of Central Europe are restored, the Marshall Plan would be simply more water on Russia's wheel.

The Kremlin program is to starve all

Potomac Soundings — *by Lawrence Sullivan*

Europe to Communism, while at the same time crippling America with a runaway inflation.

Despite the often glib suggestions of the President's Council of Economic Advisers that we might somehow handle the vast reconstruction program without serious inflationary consequences at home, it is quite unlikely that Congress will hasten to approve a proposal which, in its present form, promises complete realization of Russia's barbaric policy of world conquest through systematic economic demoralization.

In short, we are approaching an historic revision of American foreign policy.

Defeatist Decalogue

President Truman's ten-point program to restore the full range of wartime economic controls is not regarded seriously in Congress as a genuine proposal for legislative action. As one influential member of the Senate remarked a few minutes after President Truman left the House rostrum on November 17: "I read it last Saturday in the *Daily Worker*."

Senator Harry F. Byrd, of Virginia, dismissed the control program with the observation: "To make Europe free, we are urged to enslave America."

Senator Walter F. George, of Georgia, a power in the dominant Finance Committee, offered little hope that the ten-point control program could pass Congress.

Export controls and rent controls almost surely will be extended. Both expire February 28. The banking community will adopt a voluntary program for control of consumer credits. The other seven points—material allocations, price controls, the wage freeze, consumer rationing, and federal limitation on livestock weights—appear destined for the Congressional hellbox.

The political significance of the President's proposals is that they go far toward complete acceptance of the Wallace-Henderson-Wyatt program, as outlined by the PCA.

This shocking gesture of appeasement to the Wallace forces leaves many of the President's staunch admirers on Capitol Hill with an empty feeling in the pit of the stomach.

How far, in fact, would President Truman be willing to go along the line of complete wartime regimentation if the powers actually were granted by Congress?

The question is a disturbing one.

Heavy Relief Load

Thus far, it has escaped popular attention that our total expenditures for overseas relief and assistance since V-J Day (September 1945), already amount to $15,300,000,000. This figure does not include the additional $600,000,000 stopgap program recommended in the President's recent message. Neither does it include the additional amount asked for extra occupation costs this winter in Europe, principally for expanded civilian feeding by the army.

Adding these new items, the total of relief and assistance as of January 1, 1948, will stand at roundly $16¼ billions since V-J Day. If we then add the long-term Marshall Plan, we arrive at $36,-700,000,000 as our total contribution to overseas relief and reconstruction through 1951.

Inevitably these abnormal exports are reflected every day in advancing prices. As Agriculture Secretary Clinton P. Anderson explained before the New York Board of Trade on November 20:

"Last year the U. S. shipped the largest quantity of food ever sent from any one country in one year—over 19 million tons. That's an average of almost 40 tons a minute, every minute of the day and night throughout the year. Eighty per cent of these exports consisted of grain, mostly wheat. . . . We feel that the situation has boiled down to a question of physical resources—and of physical supplies of food—as much as a question of dollars."

In short, the Department of Agriculture asks: Where *are* the foods to supply this eloquent program?

These are the stark realities behind President Truman's admonition, in his message: "We already have an alarming degree of inflation. And even more alarming, it is getting worse."

Little wonder that U. S. food resources vanish at the rate of 40 tons a minute, when we consider that since V-J Day we have been extending such assistance through no fewer than fourteen distributing agencies.

First, we have given $820-million for civilian feeding through our occupation forces. We have granted another $1.3-billions in the form of direct relief to occupied areas. We have granted $3.7-billions in the British loan. We have granted $1.9-billions through the Export-Import Bank. We have given away another $1-billion in the form of surplus war property and equipment abroad, through the Office of Foreign Liquidation. More recently, we have extended $317-millions in the Greek-Turkish aid program, on top of $697-million in postwar assistance through UNRRA, and $1.7-billion in postwar lend-lease. Additional assistance has been administered through such special agencies as the International Bank established under the Bretton Woods Agreements, the International Refugee Organization, the International Children's Emergency Fund, through the gift of $131-million in merchant ships, and through the special Philippine Reconstruction Act.

As officially tabulated by the Comptroller General, these various measures of aid and assistance, through fourteen different administrative and accounting channels, have reached Great Britain, France, Italy, Germany, Austria, Belgium, the Netherlands, Greece, Turkey, Russia, Poland, Czechoslovakia, Finland, Hungary, Albania, and Yugo Slavia; Australia, the Philippines, China, Japan and Korea.

Until these open jets of economic bleeding are in some degree brought under effective coordination and control the crippling processes of inflation will not be checked. The American economy simply has been bled to the point of exhaustion—through fourteen open jugular veins. To restore OPA would be to tourniquet one bleeding vein on the home front, while leaving the fourteen overseas outlets spouting.

Unfortunately this unhappy dilemma will not wait. For while we wait, inflation rolls on inexorably.

Assistance to Russia

The report of the General Accounting Office also discloses that Russia and her puppet states behind the Iron Curtain have received roundly 11 per cent of all our overseas aid since V-J Day. The total of all forms of U. S. assistance to these seven countries to date is $1,643,900,000.

How long will it take us to stabilize Europe if we continue to give 11 per cent of our assistance funds to those nations which systematically frustrate our efforts to restore European production?

Stated any other way, we are spending 11 cents against ourselves, in the form of aid to Iron Curtain powers, for every 89 cents we spend elsewhere in the world to stem the hateful and destructive tide of Communism. That policy, maintained for another five years, could bring down the entire American economy.

The following table itemizes our aid to Iron Curtain powers since V-J Day:

Country	*Total Aid Authorized*
Russia	$440,000,000
Poland	480,300,000
Czechoslovakia	231,500,000
Finland	92,700,000
Hungary	20,500,000
Albania	22,700,000
Yugoslavia	356,200,000
Total Iron Curtain	$1,643,900,000

Another tabulation in the report from the Comptroller General shows that all nations now receiving postwar aid from the U. S. have a combined population of one-billion people. That is exactly one-half the population of the entire world! Since V-J Day we have given these nations, in all forms of aid and assistance credits, the equivalent of $15.30 per capita. To give this much aid to a billion people in two years has cost the American people $109 per capital, or $436 for the average American family.

It was this tidal wave of exports which produced the inflation which now baffles our wordy national planners. Yet in all their voluminous reports they do not so much as hint that the basic difficulty has been this concealed attempt to support one-half the entire world at the annual rate of $7.65 per capita—at an annual cost to our own people of $54.50 per capita.

However noble our national intentions, this program simply can't go on much

(*Continued on page 76*)

LITTLE GRAINS OF SAND

"Little drops of water, little grains of sand,
Make the mighty ocean, and the pleasant land."

The public reaction to the control features of the President's recent message has been prompt and positive. Americans do not like government controls in peacetime. Regardless of their political views, a vast majority among Democrats and Republicans who might be led to go along with the President on his proposal for interim aid to Europe will not agree with his arguments in regard to fixing prices and wages and reviving rationing, even on a limited basis. Entirely disregarding the effect government controls may have on our political way of life, the reasons for this antipathy should be obvious. After the end of the war, the continuance of wartime controls led to the most wasteful use of labor, time and materials this nation has ever witnessed. It is unthinkable that anyone who remembers the frustration of that period would choose to invite a repetition of it.

Wages have nearly doubled since 1938, and, as a result, even after adjusting for higher prices and taxes, the great majority of American workers are considerably better off than they were before the war. But wages, so often looked upon only as income are also an important cost imbedded in practically all prices. What is one man's wage income is another man's wage cost. Consequently, unless increases in wage rates are offset by increases in output per worker, such wage rises exert a strong upward pressure on prices and threaten the purchasing power of the workers themselves. This is what happened between 1939 and 1947. Production per man hour over these years has made a net gain of approximately 7%. Consequently, the large and almost continuous rise in wages from 1941 to 1947 has been reflected directly in unit labor costs, which, in turn, could not help but cause higher prices for everything affected by this enormously increased cost.

THE KREMLIN PLANS FOR A STARVING EUROPE AS EASY PREY TO COMMUNISM AND AN AMERICA CRIPPLED BY RUN-AWAY INFLATION AS TOO WEAK TO INTERVENE.

Left-wing labor circles propose a revival of the wartime excess profits tax for the purpose of holding down prices. A return to the excess profits tax would eliminate the powerful incentive to produce more and to cut costs that is given by the profit motive. For this tax imposes an arbitrary ceiling upon profits, confiscating virtually all the earnings of a business above some base figure.

A return to the excess profits tax largely would eliminate the profit motive just when it is most needed and lead to a decline in output and higher costs. There is only one certain cure for inflation and that is to expand production.

In its frequent rulings on current issues the National Labor Relations Board gradually is developing a pattern for administration of the Taft-Hartley Act. These actions of the Board are important, but no less important, are shifts in the attitude of the members of unions. Secret polls show that in some unions members are 10 to 1 in favor of their officers signing the non-communist affidavits. The rank and file also overwhelmingly favor sections of the Taft-Hartley Act which prohibit the involuntary check-off, secondary boycott and jurisdictional strikes. The present alacrity with which some unionists are finding good instead of evil in the much maligned Taft-Hartley Act makes one wonder how much force the labor political front will be able to muster against the sponsors of that legislation by the time the 1948 election campaigns roll around.

Industrial earnings as currently reported are being overstated because of the fact that depreciation charges are commonly based upon original costs of plant and equipment and thus are wholly inadequate in view of the present level of replacement costs. Proof that these profits, as reported, are too high is provided by the rapid expansion of bank loans since the end of the war, indicating that for a great many companies the supposedly high earnings are not in the form of available cash but have already been more than absorbed by the increased capital requirements of the business in a period of rising prices. These include the higher dollar inventories and the resulting larger accounts receivable, and the capital invested in higher-cost plant and machinery for reconversion, modernization, and development.

While it is true that wage-earners and those who live on income from invested capital find their budgets are hard hit by the present high cost of living, it is worthy of note that the government's propaganda machines that keep this fact perpetually before the public eye fail to mention that in almost every instance the current high price includes the factor of better quality. The public grindstones for a collectivist axis ignore completely the vital relationship between quality and price in judging value.

A tremendous expansion and modernization program is now underway throughout the nation's news-

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paper and printing industry as harassed publishers turn to the methods of mass production industry to offset rising costs with more efficient machinery and methods. With the U. S. public devouring daily newspapers at the rate of 2,114,000 per hour around the clock and newspaper advertising revenues expected to total $1,100,000,000 this year, substantial numbers of the country's 12,000 publishers are bidding this year for new printing equipment at a rate almost double that of 1929 in order to keep pace with improved processes and techniques in the graphic arts.

New construction throughout the nation will probably rise 20% in 1948 and set a new record of more than $15 billion, according to a joint forecast of the Commerce and Labor Departments. The survey anticipates for next year: (1) A further increase in home building; (2) a decided drop in new industrial construction; (3) a sharp gain in building by public utilities. Late last year, the Commerce Department predicted new construction in 1947, would reach $15 billion. But material scarcities and high building costs will hold the total to around $12.6 billion.

Farm real estate values have nearly doubled from pre-war. Livestock, crops, and other physical asset values have more than doubled. About the only disturbing feature in the farmer's current financial situation was the slight increase (3%) during 1946 in farm mortgage indebtedness. This was the first time since 1928 that the downward trend in farm mortgage indebtedness has been reversed. Farm mortgage debt, however, is now less than half that of the 1923 peak. About a 30% decline occurred in farm real estate indebtedness from 1940 to 1947.

We reproduce below an article which appeared in the October issue of the monthly bulletin published by the Holmes-Darst Coal Corporation of Knoxville, Tennessee. The article furnishes an interesting vista of a certain type of reasoning.

"In reading this little tale bear in mind that the average mine worker under the contract with the United Mine Workers is paid a minimum wage of $13.05 per day, and there are others who make more. To illustrate, at our Harvey Coal Corporation mine last year (1946) our car supply and the strike situation was such that we only worked 210 days during the whole year, and very few of our men worked over 200 days during the year, but those that did work that much averaged about $5,000.00 each for the year.

"With this little preface, here is a story for you to consider. At the Pruden Coal & Coke Company's mines at Pruden, Tennessee, the mine mouth (from which point portal-to-portal pay begins) is located on the mountain side, and it is reached by a fine public highway, hard-surfaced, which goes from Pruden over into Kentucky. The mine entrance is some 200 or 300 yards from the main highway, and there is a parking arrangement where men may drive up in their automobiles, park, and go to work.

"Some men don't have automobiles, so an enterprising bus owner, who has nothing to do with the

(*Continued on page 28*)

YES, electrolytic tinplate is here to stay. Its acceptance, won in wartime in the effort to conserve tin, is further strengthened by years of experience highly satisfactory to can maker, canner and consumer alike.

Youngstown Electrolytic Tinplate is made from special open hearth steel, cold-reduced with precision accuracy to the exact gauge desired. It is tempered to that delicate balance of ductility and tensile strength which best meets the fabricator's forming operations. Then in an endless sheet, speeding at approximately 500 feet per minute, it receives an electrolytic seal-coat of pure tin. The result is a superior product, delivered in increased volume at lowest possible cost.

QUALITY YOUNGSTOWN SERVICE

No other material is available in the vast quantities needed at such low cost. For your products which need sure and lasting protection, you can depend on cans made of Youngstown Electrolytic Tinplate.

Youngstown
ELECTROLYTIC TINPLATE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices — Youngstown 1, Ohio
Export Office - 500 Fifth Avenue, New York

ELECTROLYTIC TIN PLATE - COKE TIN PLATE - PIPE AND TUBULAR PRODUCTS - CONDUIT - BARS - RODS - COLD FINISHED CARBON AND ALLOY BARS - SHEETS - PLATES - WIRE - TIE PLATES AND SPIKES.

(*Continued from page* 26)

Pruden Coal & Coke Company operation, and is not a stockholder nor an employee, has been taking those men who do not have automobiles up to their work place.

"About the 29th of September the bus operator notified the men who were using the service of the bus that he would have to raise the bus fare five cents per round-trip per day.

"Believe it or not, these men went on strike; and again, believe it or not, the entire group of workers at the Pruden mine went on strike in sympathy with those who walked out because of the five-cent increase per day,—and the Pruden mine, capable of producing about 2000 tons of coal a day, did not operate during four days, October 1, 2, 3, and 4.

"The men went back to work on October 6, but in the meantime, in striking against the imposition of an increase of five cents per day in bus fare, those who struck lost their entire wage for the four days."

Under the title "Who Won the World Series?" *Tax Outlook,* the little monthly publication of the Tax Foundation publishes the following:—

We thought the Yankees won the World Series. But we got to talking to a fellow who says the *real* winner was the Internal Revenue Bureau team. For instance, this fellow says, the Federal admission tax on Series tickets comes to $356,000. Then the Yankee team's players split among them about $207,000 (their share of the gate receipts), and the players will give the Federal government about $77,000 from that in individual income taxes. Dodger players split among them about $138,000, and their income taxes on that should be about $44,000. Players in the second, third, and fourth place clubs in both leagues split about $148,000, and from that will come about $41,000 in income taxes. The Yankee and Dodger corporations split a $255,000 Series melon. That is hit by the 38 per cent corporation tax, giving the government $96,900.

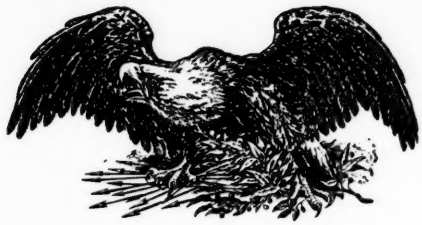
Add up these taxes, and you have the U. S. Treasury's Series share of about $614,000.00.

In addition, there is a $522,000 melon to be split among the American and National League offices and the office of the Baseball Commissioner (A. B. Chandler). The fellow couldn't say how much the Treasury would get in taxes from this, but he thought it would get something. Then the excise taxes on the beer sold at the seven Series games, plus the income taxes paid by corporations and individuals who sold the beer and the peanuts, hot dogs, and souvenirs. The scalpers who sold an eight-dollar Series seat for a hundred bucks ought to pay some pretty stiff individual income taxes. (Or, maybe, capital gains taxes?)

Way this fellow figured it, the Federal government will get from the 1947 World Serise at least three-quarters of a million dollars, maybe more.

When the Series was over, Larry MacPhail, president of the Yankees, sold his one-third share of the Yankee corporation for $2 million. His capital gains tax on that deal should be about $450,000, another Treasury gain.

This fellow we were talking to said he thought Uncle Sam should be our number one baseball fan.



"What Enriches the South Enriches the Nation"

Was Barnum Right?

Is there "one (sucker) born every minute?" as Barnum, the greatest showman and most blatant propagandist of his time is believed to have said? Is America peopled by emotional fools who can be led or misled by appeals to their curiosity, their cupidity, or, as in the present political and economic situation, to their tender hearted generosity and to their fear?

For months we have been drenched by a deluge of heart rending tales telling us about the pitiable conditions under which Europeans exist and we have been appealed to through means of every known publicity device to take steps that *might* alleviate these wretched conditions. At the same time we have been drowned in a sea of terroristic propaganda that claims that war with Russia is inevitable unless we give of our substance, and literally of our birthright, to strengthen western Europe as a buffer against communism.

Unlike Barnum, we believe that the vast majority of Americans, though they may be stirred by their emotions, will act only when their intelligence directs them. We do not believe that the present situation at home and abroad is a circus and we resent the ballyhoo of the professional barkers who are so obviously trying to drum up trade.

Let's look very briefly at the situation as it now exists. Let's forget fanfare and face facts and existing conditions. Let's ask ourselves sensible questions so that we may reach sound conclusions.

Secretary Marshall made a speech at Harvard last June in which he suggested that western European nations get together and appraise and compare their economic needs with the hope that the United States would assist them in meeting these needs. Out of this informal suggestion has grown the "Marshall Plan." Who are its authors? Are they the same planners who planned scarcity during the 30's and predicted 10 million unemployed during 1946 and turkeyless Thanksgiving, Christmas and New Year's days this year? Who lurks in the shadows of a great man's name?

There can be no doubt but that we as a nation want to help Europe's destitute, and we can afford such help if it were to be handled efficiently through a non-political relief organization like the Red Cross or an independent commission headed by a man like Herbert Hoover.

There is no assurance that we can halt the spread of communism in Europe merely by spending our money, no matter how much we spend or throw away for European re-habilitation. American addicts to communism eat well. Why should we bleed ourselves white to infuse life blood into stumbling socialism abroad to save it from communism when by so doing we are giving totalitarianism a fresh grip on our own people here at home?

Our national government owes more than 250 billion dollars yet we glibly suggest giving what we do not have to other nations whose debts are insignificant compared to our own. We dare to suggest doing this because we have shown at least sufficient acumen to manage our internal affairs (including the enormous debt) while foreign nations, wandering from the path of economic freedom, have made a mess of theirs. Our present planners even have the effrontery to propose that we fasten on ourselves European methods of economic controls in order to save, for a little while, those same methods from failing in Europe.

If we are honest with ourselves we will admit that we are not in a financial position to buttress failures in Europe. And even if we were, it would be folly to confuse charity with development and both with the thought of putting a ring in the Russian bear's nose.

The South neither asked for nor received charity from the government to which it returned in 1865. It stands today as an inspiring example to other parts of the world of the economic success that can be attained by a determined people under a government which guarantees freedom of the individual.

It is possible to consider the people of western Europe (not their governments) as pathetic patients in need of our charity who should receive temporary alleviation of their suffering in order that they may regain their will to develop themselves. We should give freely and cheerfully as *charity* what we can afford to give without further jeopardizing our own future as a nation of free men and women.

Market Research

As individual incomes in the South continue to make gains ahead of the average for the rest of the country, analysis of Southern consumer markets becomes more and more important for all manufacturers of consumer goods; and especially important for such manufacturers located in the South.

Two types of research are now recognized as basic to rapid manufacturing progress. The first of these involves product research; the second, market research.

Product research has been playing an important part in Southern industrial expansion for a good many years, with fine independent research institutes and others attached to, or a part of, a number of Southern universities. These institutes are contributing enormously to the improvement of established Southern products, and also to the discovery of excellent new ones.

Market research while it has received some notice has by no means received the attention that special conditions of the South justify. Market research aims at two objectives: (1) plant location in the most strategic environment for competitive performance; and (2) appraisal of territory in which products can be sold in greatest volume, and at maximum profit.

For many consumer products industries, the South offers opportunities both as to manufacturing advantages and profitable and rapidly expanding markets. It is making real progress in analyzing and publicizing the advantages of its plant sites now. There is scarcely a community to be found in the South that is not busy right now appraising and listing available sites for manufacturing plant location. Practically any chamber of commerce in any Southern city or town can offer manufacturing sites to meet the requirements of a variety of manufacturing enterprises.

The desirability of these locations generally is enhanced by a pool of available and cooperative labor which, if not already skilled in a particular type of manufacture, enjoys the inherent intelligence necessary for learning it quickly.

Along with plant location, availability of raw materials also goes hand in hand as a prime requisite. In this category it would be a rare business that could not find among the South's abundant minerals and products of the soil all that might be required in the way of basic supplies.

Southerners are aware of these advantages. They are advertising them vigorously. If now they would but turn to the second, and equally important, phase of market research, and give it the same vigorous attention, there seems little doubt that results obtained by the first phase would be vastly improved.

Products remain profitless until sold. The finest of raw materials and the best in the way of plant location and facilities cannot change this result. To be a logical lodestone for new manufacturing enterprise, the South must be able to offer a market for the product as well as prime facilities for production.

That the region contains within itself such a market is readily apparent. Any region that spends each month better than $2 billion for purchases at retail is a good consuming market. Any region that is forced by historic circumstances to import from other sections vast amounts of finished consumer goods and that increases its per capita income by 150 per cent in six years, while the rest of the country is increasing but 120 per cent, is bound to be an excellent consuming market, especially for new manufacturers with eyes on the future.

What the South now needs is the same intense analysis of this buying power that is being given to producing facilities, the results gathered in presentable form, and publicized in the same vigorous manner in which plant site advantages are now advertised.

Good Advertising

Last month an advertisement was the subject of adverse criticism in these columns. This month it is our pleasure to praise.

From Deland Florida comes this cheery and convincing message:

"Even distribution of ample rainfall each month, days on end of glorious sunshine, together with proper cultivation, has enabled us to raise in our own groves the kind of oranges, tangerines, and grapefruit that will please you."

The advertisement goes on to describe the excellent transportation facilities at hand for swift delivery to widespread points; elaborates on the varieties of fruit that can be furnished; outlines attractive packaging methods, and an efficient system of notifying prospective recipients of shipments. It finishes up with this catchy invitation:

"When you are again in Florida, pay us a visit. You will like Deland, it is the home of Stetson University, its people are friendly, and it's the place to come for black bass fishing."

Here is an advertisement put out by a producer that could well be used by a real estate promoter. Yet, it is quite apparent that such an objective was far from the advertiser's mind. He wants to sell his oranges, tangerines, and grapefruit, and he is smart enough to know that a diamond set in a rusty ring loses most of its glamour.

He has depicted his product in an attractive setting and has enhanced both thereby. The psychological effect is to create a desire in the mind of the reader to go to the point of production and take delivery in person.

In all probability purposely, but perhaps without being consciously aware of it, this advertiser is building twicefold for his own prosperity when he builds for the community in which his product is produced as well as for the product itself.

Blue Book Studies Show Southern Enterprise at Its Best with $23,000,000,000 Output

THE year 1946, first full peacetime year, saw Southern productive enterprise operating at its best.

Fraught as it was with confusion of diverse kinds, the year at its beginning loomed for the most ardent supporters of Southern progress as a period in which the region would have to be content to hold industrial losses to the lowest minimum possible. That a net loss could be avoided in entirety was scarcely then hoped for.

Despite the pitfalls of conversion, the handicaps of confused governmental policy, and drastic shortages carried over from the most devastating war in all history, it now appears a certainty, however, that the South did not sustain an expected loss in industrial activity at all, but instead was able to achieve a substantial gain.

Figures now nearing completion for the 1948 edition of Blue Book of Southern Progress indicate that the value of output by manufacturing establishments in the South in 1946 ran $23 billion or more, topping 1945 by almost $3 billion.

Results obtained in manufacturing were all the more favorable in the face of obstacles that had to be surmounted. Supplies and materials were very hard to obtain. Price and allied controls carried forward from the war period, with their inevitable black markets, aggravated the confusion. In addition, a critical impediment to sustained production presented itself in the greatest run of industrial conflicts between management and labor that the United States had ever experienced.

While the number and intensity of these conflicts were lighter in the South than in other sections, they were not without their serious effects. Production time lost through work stoppages in various Southern manufacturing industries totaled over seven million man days, with loss of production ranging up close to $300 million.

The iron and steel industry, vastly expanded in the South during the war, paid the greatest toll to work stoppages. Over two million of the seven million man days lost occurred in that industry. Even so, the output of Southern steel and iron plants established a new production record during the strife torn year, turning out products valued at $1.3 billion, 16 per cent greater than the output for 1945.

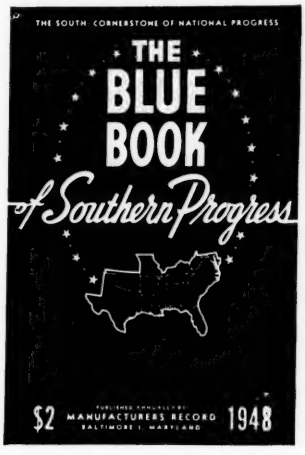
Percentagewise, the rejuvenated automobile industry, practically suspended during the war, sustained the greatest production loss by reason of strikes. Man days totaling 662,000 were lost to that industry, over 11 per cent of the possible working days of the year. Here, however, was another industry which went forward to a new production high, turning out a product value of something over $300,000,000 in 1946, against $113,000,000 in 1945 and $291,000,000 in 1939.

Work stoppages were more pronounced in the durable goods group, being relatively light in the nondurable manufacturing industries. This condition accounts, in large part, for a generally better showing made by the nondurable group.

Even though production losses were sustained in the twin groups, Chemicals and Petroleum and Coal Products, the nondurable industries as a whole made substantial gains. The food industry, especially, responding to worldwide need, was unusually alert in getting the most out of established production facilities and in the construction of many new factories and additions to existing plants. The food industry increased production in 1946 by 50 per cent over 1945.

In addition to Food, Steel-Iron, and Automobiles, substantial gains were made by Lumber, Apparel, Furniture, Leather, and Rubber.

Transportation Equipment sustained a loss, as was to be expected with the lapse of the all-out aircraft production campaign made necessary by the war. Losses in this industry, however, were less than generally expected, indicating good health for Southern peacetime enterprises in shipbuilding, aircraft fabrication, and railroad equipment production. Production for the industry dropped from the $1.7 billion of 1945 to something over $800,000,000 in 1946. It was early conceded that this industry could not maintain during peacetime the phenomenal pace set during the war, and it will undoubtedly be encouraging for Southern enterprise that the industry was able to maintain a position near the billion dollar class.



Textiles remained in second place among Southern industries, with moderate gains for the year. Tobaccos just about held their own, as did Pulp Paper, Machinery, and Electrical Machinery, the latter showing slightly on the losing side. Fair gains were made in Stone-Glass, Printing and Miscellaneous Manufacturing.

The Blue Book also will show mineral production registering a new peak, about 10 per cent above the record production of 1945. This record, too, was established in the face of mine strikes of large and lasting proportions. Southern mines lost 10 million man days through strikes, ranging from nearly five million in West Virginia down to none for South Carolina. South Carolina had the distinction of being the only state in the South to be free from strikes of all kinds, manufacturing as well as mining.

Despite the handicap of these conflicts, Southern capital and Southern workmen set aside their differences when settlements were attained, and went forward to commendable achievement in all production lines.

New tables in the Blue Book will show that construction employment and building put in place resumed a sharp upward trend in 1946, after a slump extending through the years 1944 and 1945. In fact, construction activity was practically doubled in 1946 over 1945.

New tables will also reveal an interesting development in the growth of the Southern labor pool. While population gained only fractionally, the labor pool was up eight per cent in 1946 over 1940, indicating not only that Southern workers are finding it prosperous to remain at home, but also that more of them are becoming qualified for important roles in industry.

Southern farms kept pace with other branches of production. Farm acreage planted showed little change but physical volume of production and dollar value were both up substantially, the latter topping 1945 by about 16 per cent.

State debt was reduced all along the line, with Georgia leading in this respect with a material reduction of 45 per cent.

Bank deposits held practically steady during the year, which in actuality represents a substantial gain so far as individual and corporation deposits are concerned. Withdrawal of governmental deposits of large proportions, set up to finance war contracts, created an enormous deficit that had to be filled by greatly increased individual deposits to keep deposit volume at an even level.

Electric power production, and electrical requirements of industrial establishments were down somewhat, chiefly due to work stoppages in mines and factories. However, the end of the year found many utilities operating at near peak loads, giving strong proof that this industry is looking forward into the most active era ever experienced.

Considering the obstacles that were hurdled and the generally pessimistic outlook that prevailed at the beginning of the year, Southerners should be able to write 1946 off as a year of pleasing surprises and prideful accomplishment.

Above—Algernon Blair, Montgomery, Ala., is the contractor, Pembleton and Mims, the architects, for the Bragg Apartment project at Montgomery, Ala.

Southern Construction Value Up in First Eleven Months--November Total Set at $167,222,000

SOUTHERN construction was valued at $167,220,000 for the month of November and at $1,727,046,000 for the first eleven months of the year.

Fourth highest monthly figure this year, the November total is about twenty-six per cent below the valuation placed on the preceding month's awards but it is over ten per cent ahead of the total for the comparable month of last year.

The aggregate for the first eleven months is above the valuation at the same time last year, the increase approximating four per cent, and the total being the highest for a comparable period since 1942. This latter year and the one immediately preceding it are, in fact, the only two whose first eleven months saw larger totals.

As in the preceding month, private building in November accounted for the largest value among the five categories of southern construction, as tabulated by the MANUFACTURERS RECORD from items published in its *Daily Construction Bulletin*.

The private building total was $48,694,000, a decrease from the value placed on such contracts in October, but more than twice the $21,053,000 value of private building awards in November of 1946.

The residential contracts valuation represents about three-quarters of the current November private building total. The figure for such work was $32,368,000. In the preceding month it amounted to $65,002,000. Residential construction during November of last year was about one-half of what it was during the current November.

Other constituents of the November private building figure were $8,375,000 for commercial buildings including stores, restaurants and filling stations, $6,182,000 for assembly type structures such as churches, theatres and auditoriums; and $1,769,000 for office projects. The assembly and commercial building figures are higher than October's totals for similar work; the office figure is lower.

Engineering construction in November made more than a twelve million dollar gain. The total was $37,865,000, as compared with the $25,551,000 for October. For the comparable month of last year, the figure was $20,107,000. A wide variety of projects contributed to the increase. The Corps of Engineers was particularly

SOUTH'S CONSTRUCTION BY TYPES

	November, 1947 Contracts Awarded	November, 1947 Contracts to be Awarded	Contracts Awarded First Eleven Months 1947	Contracts Awarded First Eleven Months 1946
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	$ 6,182,000	$ 13,187,000	$ 35,259,000	$ 23,396,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	8,375,000	5,405,000	52,021,000	59,633,000
Residential (Apartments, Hotels, Dwellings)	32,368,000	21,931,000	310,178,000	280,258,000
Office	1,769,000	3,940,000	37,690,000	20,454,000
	$ 48,694,000	$ 44,463,000	$ 435,148,000	$ 383,741,000
INDUSTRIAL	$ 14,589,000	$113,245,000	$ 365,182,000	$ 434,479,000
PUBLIC BUILDING				
City, County, State, Federal and Hospitals	$ 6,630,000	$ 37,923,000	$ 122,440,000	$ 141,774,000
Housing	.....	.....	170,000	9,007,000
Schools	24,219,000	54,021,000	173,715,000	91,773,000
	$ 30,849,000	$ 91,944,000	$ 296,625,000	$ 242,554,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	$ 20,237,000	$ 55,059,000	$ 161,192,000	$ 184,369,000
Federal, County, Municipal Electric	2,696,000	19,857,000	16,866,000	24,820,000
Sewers and Waterworks	14,932,000	25,370,000	76,843,000	54,368,000
	$ 37,865,000	$109,286,000	$ 254,901,000	$ 263,557,000
ROADS, STREETS & BRIDGES	$ 34,825,000	$ 26,307,000	$ 374,890,000	$ 338,720,000
TOTAL	$167,222,000	$368,335,000	$1,727,046,000	$1,663,051,000

active in making awards for river and harbor and flood control work.

The largest proportion of the November engineering figure was the $20,237,000 for dams, drainage, earthwork and airports. Sewer and water work accounted for pratically all of the balance. The figure for the latter was $14,932,000, as compared with the $12,599,000 for the preceding month. The dam-drainage-earthwork-airport total, however, represented a substantial rise over the previous month's $12,073,000.

Highway, street and bridge construction held third place in November with a $34,825,000 total. Although this was a decrease from such awards made in October, it was above the $32,134,000 for November of last year. Texas awards were the largest in value, followed by North Carolina, although the latter represented about one-fourth of the Lone Star State figure.

Public building in November amounted to $30,849,000, a figure slightly above the $29,615,000 for October. The current public building total, however, was more than three times that for November of last year. About four-fifths of the figure is made up of school awards totaling $24,219,000. In the preceding month the public building figure was composed of $17,825,000 for schools and $11,790,000 for government structures.

Industrial construction awards have dropped to the low for the year. The November figure was $14,989,000; that for October, $40,594,000, and for November of last year, $67,745,000.

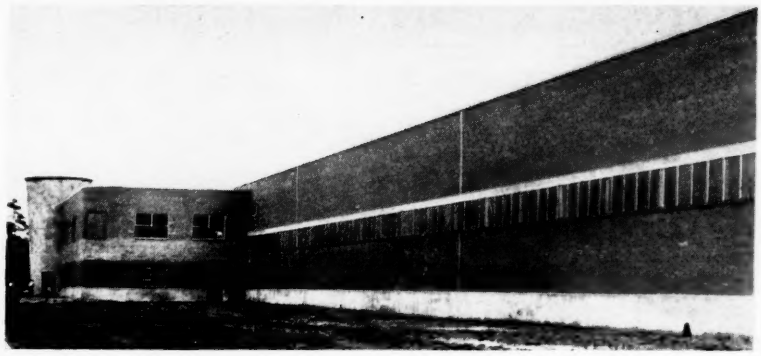
Industrial contracts for the eleven-month period amount to $365,482,000, as compared with $434,479,000 for the first eleven months of 1946.

Industrial awards were outranked by two other categories in the eleven-month picture. These were the $435,148,000 for private building and the $374,890,000 for highway and bridge work.

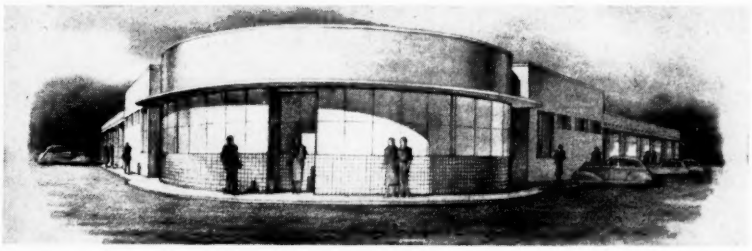
The private building figure embraced a preponderance of residential construction value. This in the eleven-month period totaled $310,178,000. Commercial buildings totaled $52,021,000; office type structures, $37,690,000 and assembly buildings, $35,259,000.

Highway and bridge construction this year has seen activity in all of the sixteen states and the District of Columbia. Texas contracts so far total $122,323,000, as reported to the *Daily Construction Bulletin*. Other states above the twenty-million dollar mark include $32,382,000 for Louisiana; $27,423,000 for Missouri; $22,799,000 for Maryland; $21,939,000 for

(*Continued on page 58*)



Above—The new $850,000 Lily-Tulip Cup plant at Augusta, Ga. One-story in height, the plant is approximately 600 feet long and 240 feet wide with a 150 by 40-foot office wing which has a giant cup as its entrance theme. K. Kretzer & Son of New York were the industrial contractors in charge. The plant produces paper products. Output of the Lily-Tulip company includes cups, dishes, drinking straws and various containers made of specially treated paper.

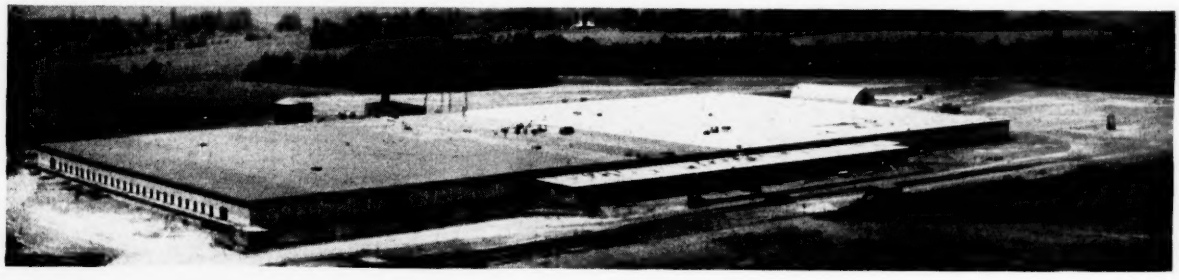


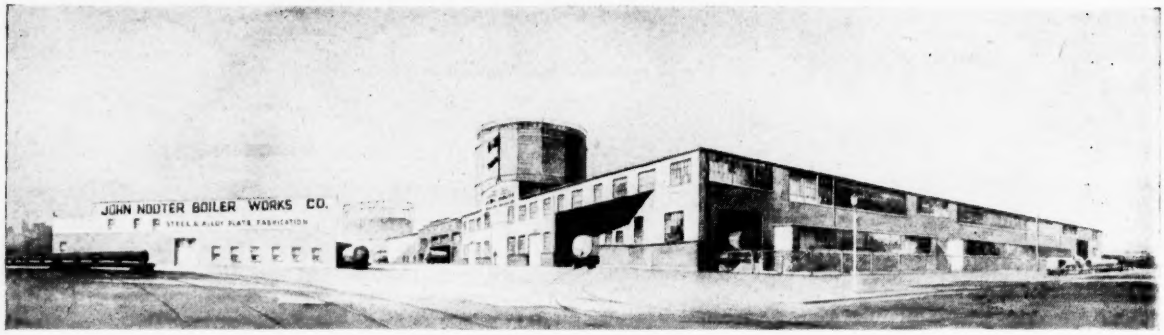
Above—The $100,000 supermarket and 12-store project designed by A. Eugene Cellar of Jacksonville, Fla., for Charles E. Commander, Jr. To contain 22,000 square feet, the building will have tile exterior walls, concrete foundation and floors, built-up roof, steel casement windows and gas heat.

SOUTH'S CONSTRUCTION BY STATES

	November, 1947		Contracts Awarded First Eleven Months 1947	Contracts Awarded First Eleven Months 1946
	Contracts Awarded	Contracts to be Awarded		
Alabama	$ 7,670,000	$ 16,059,000	$ 52,349,000	$ 68,260,000
Arkansas	10,553,000	7,677,000	48,467,000	44,854,000
Dist. of Col.	936,000	2,975,000	37,890,000	18,109,000
Florida	21,367,000	50,124,000	189,254,000	183,743,000
Georgia	13,407,000	14,724,000	143,035,000	130,120,000
Kentucky	2,2 2,000	5,615,000	29,685,000	43,591,000
Louisiana	19,654,000	22,870,000	159,249,000	81,752,000
Maryland	12,2 ,000	23,346,000	142,815,000	142,015,000
Mississippi	2,085,000	16,249,000	61,757,000	62,345,000
Missouri	1 ,071,000	8,556,000	74,776,000	47,699,000
N. Carolina	8,575,000	17,345,000	71,102,000	71,654,000
Oklahoma	385,000	9,230,000	36,359,000	48,820,000
S. Carolina	5,553,000	9,390,000	18,759,000	122,068,000
Tennessee	6,992,000	9,818,000	45,951,000	97,851,000
Texas	49,119,000	125,431,000	498,349,000	431,368,000
Virginia	3,339,000	14,574,000	57,730,000	55,657,000
W. Virginia	1,309,000	2, 43,000	29,419,000	13,505,000
TOTAL	$167,222,000	$3 6,2 5,000	$1,727,046,000	$1,663,051,000

Below—Aerial view of new Penney warehouse at Statesville, N. C. Covering eight acres, the new unit started shipping merchandise last month to Penney stores. A special railroad sidetrack was built so freight cars and trucks can be loaded or discharged simultaneously. The Statesville location was selected due to its proximity to manufacturing plants supplying Penney stores in the South.



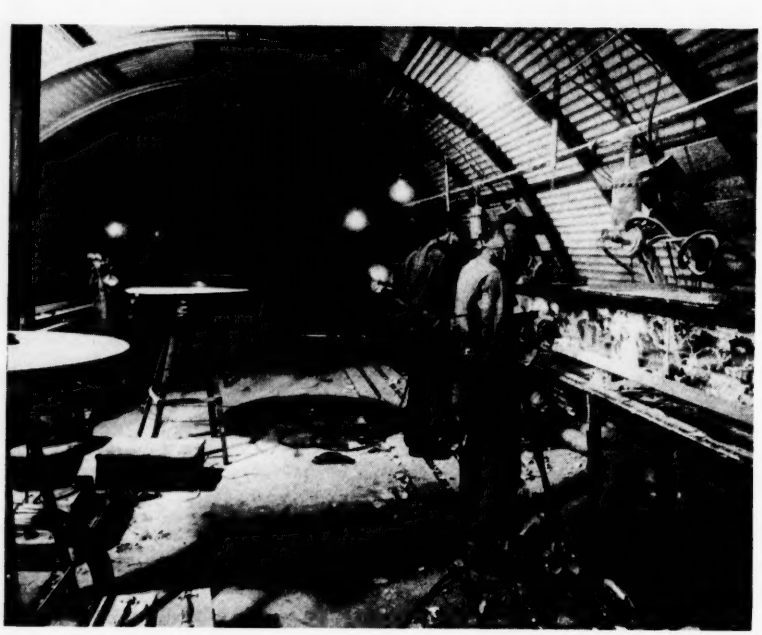


Above—Plant and executive offices of John Nooter Boiler Works Company.

Industrial Teamwork Features St. Louis Boiler Business

by

Paul W. Treadway



Above—Nooter workmen apply aluminum to copper-bearing extruded aluminum structural shapes by use of spray guns.

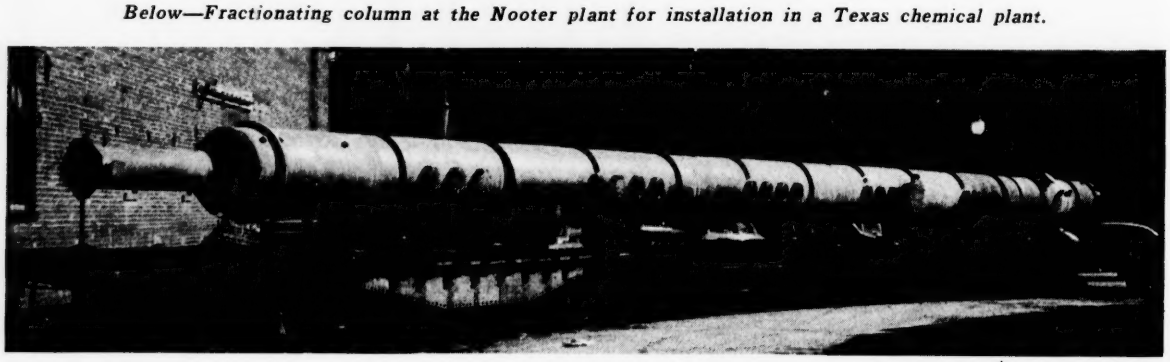
WHENEVER an employe of the John Nooter Boiler Works, St. Louis, Mo., runs into a problem that defies solution in the bustle of the busy plant, he threshes it out in the company's "worry room." Everyone from the office boy to president makes use of this room. It is the latest service a highly unusual firm offers its workers.

The Nooter company makes special steel and alloy plate equipment for the chemical, food, oil and electrical industries. It operates on the premise that a business' best friends are its employes. Its officers adopted that policy 12 years ago and say it has paid off in profits to management and labor both.

In 1935 Nooter had 35 employes; five years later it had 200; today it has more than 400 and still is growing. The company's prosperity—lit-

(Continued on page 70)

Below—Fractionating column at the Nooter plant for installation in a Texas chemical plant.



Industrial Employee Training

by
Edward Arter
Curtiss-Wright Corporation

THE advantage of discussing the topic of industrial employee training is that during the past few years the term "training" has been used in such a way as to make its definition a little vague. It is sometimes set up because somebody in authority reads in a management magazine where one of their major competitors is doing a bang-up job of training. It is decided that this must be the reason for their success and so a training program is embarked upon without knowing exactly why. In such cases training becomes a fashion, not a function.

There are so many different concepts regarding training and what it may be expected to accomplish that I am somewhat in the position of the little boy whose father asked him what he was drawing. The little boy's reply was, "I am drawing a picture of God." His father said, "Son, you can't draw a picture of God because no one knows what God looks like." The little boy replied without hesitation. "They will when I get through."

This paper will be successful if through it you can gain a clearer picture of what industrial training involves.

As a means of accomplishing this, three main points have been established.

I. Why have training in industry?
II. What is meant by training?
III. How can organized training be applied?

Why Have Training in Industry

In this day of large and complex industries, involving many such specialties as labor relations, job evaluation, methods engineering and the many new technical developments, which I notice are being discussed in this form, it is often refreshing to go back and inspect the manner in which industry has grown.

The first evidence was where the individual produced only enough goods for his personal use. Being his only customer, he was entirely responsible for the quantity and quality of such goods produced and was obliged to develop his skills only to the point at which the goods were satisfactory to him.

As men began to work together, first in families and then in communities, it was found that some excelled in certain skills. They could produce more goods of a higher quality in less time if allowed to exercise their special skill.

Next, came the condition where the craftsmen produced goods in a workshop-store and sold directly to the customer, by either barter of money exchange for enough to support himself and his family.

When machine tools came into being, the individual was able to produce a great quantity of goods. Many times more than was needed for the support of his family. However, the machines brought the need for additional services. For example, it was necessary to have men who could service and maintain the machines. It was necessary to have men skilled in disposing of the quantity of goods which could be produced. Since neither of these men were actually producing goods it was necessary for the machine worker to produce enough goods to support both his family and their families. The many other services within an industry followed until today we have a complex organization consisting of production control, sales, engineering, personnel, labor relations, planning, tooling and the management structure. All serving a vital need but still depending upon the actual goods produced for the support of their families. It is important that these services or overhead departments be highly skilled in order to reduce, to the minimum, the load carried by actual production.

From this the conclusion may be drawn that the success of our various industries today depends upon the ability of each individual to produce a high quality product within a specified time at the lowest possible cost. In other words, it depends upon how well each worker knows and does his job.

The question has come up many times in management meetings, "Shall we establish a training program for our employees?" Actually this question should be stated, "Shall we develop organized training of our employees as one means of achieving our objectives or shall this training be left to chance, and attempt to compensate for the cost and loss of time by some other means." * * *

Let us consider the problem of learning to drive an automobile. Suppose that in some remote section there is a man who has seen only pictures of automobiles, but has never driven. Now let us pull an equally ficticious automobile out of the air for this individual to learn to drive without benefit of instruction. From the location of the steering wheel and the various controls, it is obvious where the driver is supposed to sit; our friend gets this far with little difficulty. However, from here on anything may happen. Even if each control were labeled, a person such as we are considering here, would not understand the significance of such words as "ignition," "chock," "clutch," "brake," "gear shift." After some investigation and experimentation he may find, provided the car is in gear, that the starter button causes it to move forward. This accomplished, he may feel that he has now learned to drive. If he should happen to turn on the ignition switch, the engine might catch and he would move forward at a higher speed in low gear. He is probably convinced that now he does know how to drive and may be satisfied to drive in low gear indefinitely. It may be with further experimentation he will find second gear and high gear. He may develop to the place where he can perform all of the normal tasks involved in driving a car but still be unprepared for contingencies such as running out of gasoline, oil or water, flat tires, ignition trouble, etc.

Compare this method with organized instruction beginning first by explaining the names and functions of the controls, then a demonstration of how they operate and finally an opportunity to apply this learning through actual practice first under the supervision of the instructor and then alone with periodic checks until efficiency is achieved. This instruction also includes a forewarning of possible difficulties, and remedial measures for each.

Applying this to industry let us compare the merits of an untrained worker in our plants as opposed to a trained worker by means of this chart.

An Untrained Worker Is:

1. *Wasteful*:
He not only ruins materials but wastes his time and valuable machine and equipment time while doing so.

2. *Safety Hazard*:
He is a menace to himself, to others, to equipment and to the product because he does not know the hazards of the job.

3. *Demoralizing Influence*:
He adversely affects the entire group with which he is working as long as he remains untrained. This becomes especially critical where an incentive type pay is in effect based upon group accomplishment.

4. *Poor Department or Plant Record*:
Production and financial records can be only as good as the production and efficiency of the individual workers.

5. *Liability*:
The untrained worker is an all-around liability to the company for which he works.

A Trained Worker Is:

1. *Efficient*:
He can do his job with the least amount of effort and time.

2. *Safety Conscious*:
He is aware of the hazards of his job.

3. *Morale Builder*:
He sets up good work standards for the entire group and carries his share of the load.

4. *Good Department or Plant Record*:
Such a worker will build a good record for the department and company through his production and efficiency.

Asset:
He is an asset instead of a liability because he produces.

There will be those that say, "This type of discussion may apply to new or green

(*Continued on page 76*)

Above—Loading 400-pound packages of paper pulp.

Materials Handling, "Almost" a New Business Science—II

by

John F. Johannsen*

W. GORDON BENNETT in his statement, "Annual savings possible through unit loading methods of materials handling stagger the imagination," points out that while great savings are possible through unit loading methods of materials handling, it will take time for industry to realize the maximum in savings. Management will need to be sold on perhaps making some radical changes in their respective plants to make these savings possible. The change will have to be introduced gradually, because many of the industrial plants are not fully equipped to handle unit loads.

Mr. Bennett pointed out that the average age of manufacturing plants in this country is 40 years. In New England the average age of industrial plants is 60 years, and in New York, Philadelphia, and Baltimore the average age is 52 years. Under these circumstances he suggested surveys to determine the following:

1. How many of these plants are equipped for platform loading or have overhead cranes that can take 2,000 lbs. or more?
2. How many plants are forced to accept sidewalk delivery?
3. What is the capacity of freight elevators in these plants?
4. Are door openings wide enough for capacity unit loads?
5. Do the customers have the mechanical equipment to handle heavy unit loads when they are received?

Mr. Bennett pointed out that the answers to these questions in the majority of cases are not very favorable. The theory of modern materials handling methods has been or will eventually be accepted by industry, but the application of the theory to actual practice will mean the expenditure of considerable sums of money.

Standardization Necessary

This brings out the fact that in order to get the most far reaching results in unit load materials handling methods, it should be practiced by both the producer and the consumer. In other words, the procedure should be universally used throughout industry as a whole. Much research is necessary and certain standards would have to be determined upon and adopted by the entire country.

Profession, Not Just a Job

For this reason, we are contending that modern materials handling is an industry in itself, and qualified men are needed to solve the many difficult problems involved. The savings in time and money that can be effected are certainly sufficiently important to any industry or manufacturer to elevate materials handling "know how" into a profession rather than just an occupation. The satisfactory solution of the many complex problems involved requires the services of experts.

Analyzing Methods and Costs

As pointed out earlier there is no universal method that can be used in all industries. Each industry has problems that are individual in scope, and each particular operation must be carefully analyzed in the light of the local and individual conditions.

We can only suggest certain basic principles which will perhaps act as a springboard. Careful analysis must be made of each handling operation from unloading the raw material, the processing throughout the various manufacturing operations, to the final despatch and delivery of the finished article. Even when the product is received and handled by the wholesaler, the retailer, and even the ultimate consumer, there are possibilities of eliminating hidden handling costs.

We cannot begin to lay down any definite rules or formulae for individual industries, but we will suggest the following check list or questionnaire, which when carefully reviewed should at least smoke out some interesting facts in the average factory or manufacturing establishment.

How can you reduce your materials handling costs? First of all, you should determine the following:

1. What are your present operating costs?
2. Is your overhead higher than it should be?
3. What are the causes of your high overhead costs?
4. What is your indirect labor payroll?
5. How much money is spent for materials handling?
6. What per cent of your costs are due to handling?
7. What can you do to cut handling costs?

Remember, handling costs add nothing to the quality of your product, but only increase costs and reduce profits.

Study your production procedure and determine the following:

1. Is your production hampered by the following:
   a. Lack of sufficient raw material at certain periods.
   b. Inability to load and unload materials in time to keep production flowing.
   c. Are trucks, railway cars, ships, etc., loaded and unloaded immediately upon arrival?
   d. Do you have high demurrage costs?
   e. Is your raw material properly stored and available when needed?
   f. Is your materials handling equip-

(*Continued on page* 66)

* Member of A.S.M.E., Manager Export Division, Hyster Company, Portland, Ore.

Economic Lot Sizes in Manufacturing—III

Illustrative Examples

by
Paul T. Norton, Jr.
Associate Editor

Present economic conditions have increased the importance of the economic lot size problem. High wage rates often require increased mechanization. The greater preparation costs resulting from increased mechanization always increase the economic lot size. Under the present high price level, many manufacturers are finding that their working capital resources are inadequate, and increased lot sizes make this situation worse because the capital invested in finished inventory varies directly with size of lot. The information which we have published in our series of articles on Economic Lot Sizes in Manufacturing should help manufacturers calculate lot sizes which will reduce working capital requirements to a minimum without at the same time too greatly increasing the costs of manufacture and storage. There are strong indications that the average manufacturer is burdening himself unnecessarily by using overlarge lot sizes.

THIS is the third and final article in a series devoted to a study of the economic lot size problem. The earlier articles, published in our October and November issues, discussed the problem in general terms, showed that the problem has recently become even more important than was formerly the case, and also derived and discussed an economic lot size formula. The purpose of this concluding article is to give some examples showing the application of the formula to certain actual industrial situations and to make certain comments on these examples. In these examples the economic lot size will first be found by using the formula, and the economic range will then be determined by tabular methods. As pointed out in the two previous articles, it is possible to solve the problem through the use of tabular and graphical methods without using a formula at all.

The following examples represent actual economic lot size studies made by the author for several Virginia manufacturing companies. Actual data are used in each case.

All of these studies were made on products where the parts were first manufactured from raw materials and the complete product was then assembled from these parts. Only enough of each part (plus a spoilage allowance) was produced for the assembly of one lot of the finished product. There was no storage of parts or material in process except on the production floor, the amount of material in process depending upon the total production of the plant rather than upon the lot sizes. On account of the nature of the product it was not necessary to reserve storage space permanently for any item.

Under the stated conditions, it was decided that the most suitable form for K in all of these examples was

$$\frac{[(B + I)C + A]\left(1 - \frac{U}{P}\right)}{2NU}$$

Example I

Both the production and consumption rates were variable, especially the latter. The records indicated that a good average value for P was 100 pieces per day and that a normal average demand was about 10 pieces per day. The management of this company felt that 13 per cent per year was the proper figure for the minimum attractive rate of return on capital invested in inventory. The author believed that in this particular case 20 per cent per year was a better value for this factor. This example has been calculated for a minimum attractive rate of return of both 13 per cent and 20 per cent, so that the effect of a change in this factor may be noted. All other values were taken directly from the books of the company.

S = $50.32
P = 100 pieces per day
U = 10 pieces per day
N = 276 days per year
C = $27.72
A = $1.70
B = 1.1 per cent
I = 13 per cent
K =

$$\frac{[(0.011 + 0.13)\,27.72 + 1.70]\left(1 - \frac{10}{100}\right)}{2(276)(10)} = \$0.000915$$

$$Q_e = \sqrt{\frac{50.32}{0.000915}} = 234 \text{ pieces per lot}$$

As the consumption rate for this product was quite variable, it was decided to calculate the economic lot size for consumption rates of both 5 pieces per day and 20 pieces per day, in addition to the consumption rate of 10 pieces per day used in the preceding calculations. All other data were the same as in the preceding calculations. It was found that the economic lot size was 160 pieces per lot for a consumption rate of 5 pieces per day, and 350 pieces per lot for a consump-

(Continued on next page)

Table I

Q	S/Q	C	KQ	V
	U = 10 Pieces Per Day			
100	$0.50	$27.72	$0.09	$28.31
150	0.34	27.72	0.14	28.20
200	0.25	27.72	0.18	28.15
234	0.21	27.72	0.21	28.14
300	0.17	27.72	0.27	28.16
400	0.13	27.72	0.36	28.21
	U = 5 Pieces Per Day			
100	$0.50	$27.72	$0.19	$28.41
160	0.31	27.72	0.31	28.34
200	0.25	27.72	0.39	28.36
300	0.17	27.72	0.58	28.47
400	0.13	27.72	0.77	28.62
	U = 20 Pieces Per Day			
100	$0.50	$27.72	$0.04	$28.26
200	0.25	27.72	0.08	28.05
300	0.17	27.72	0.12	28.01
350	0.14	27.72	0.14	28.00
400	0.13	27.72	0.16	28.01
500	0.10	27.72	0.20	28.02

tion rate of 20 pieces per day.

The information Table I (page 41) is of interest for a number of different reasons. As is true of all such tables, it shows how the unit charges vary for different lot sizes. It also shows how a problem of this sort may be solved by tabular methods without using a formula.

Table I shows clearly that the size of lot may be reduced considerably below the economic lot size without greatly increasing total unit charges. For instance, in this example, with a consumption rate of 10 pieces per day, the lot size may be reduced from 234 pieces per lot to 150 pieces per lot with an increase in total unit charges of only $0.06, and to 100 pieces per lot with an increase in total unit charges of only $0.17, or less than one per cent. As the amount of capital tied up in inventory varies directly with the size of lot, this is of tremendous importance to a company with limited working capital resources.

Variable Seasonal Demand

It will be noted that in Example I a change in the consumption rate from 5 pieces per day to 20 pieces per day changed the economic lot size from 160 pieces per lot to 350 pieces per lot, thus again showing that the economic lot size varied approximately as the square root of the consumption rate. This relationship would be exact if it were not for the effect of the factor $(1 - \frac{U}{P})$. Where P is very large in comparison with U, the factor $(1 - \frac{U}{P})$ may be considered to be unity, and eliminated completely from the formula and calculations, without materially affecting the results.

Example I can be used to advantage to illustrate the use of two short-cut methods for finding the economic lot sizes for various consumption rates. One of these short-cut methods requires the determination of an additional constant D, which is the economic lot size calculated from the regular formula when $U = 1$. Under such circumstances, $Q_e = D\sqrt{U}$. If D is calculated from the data of Example I, it is found to be 70.5, and the economic lot sizes using this short-cut method would be 158, 223, and 316 pieces per lot respectively for consumption rates of 5, 10, and 20 pieces per day, instead of the more accurate economic lot sizes of 160, 234, and 350 pieces per lot as determined by using the full formula each time. P is not enough larger than U to make this short-cut method very accurate in this particular case, although the information given in Table I shows that the lot sizes found by using this short-cut method are perfectly satisfactory.

A second, and often even better, short-cut method may be used to advantage when there is what might be called a normal consumption rate and when there are no great differences between consumption rates. When this second short-cut method is used, the economic lot size is determined for the normal consumption rate in the usual way, and the economic lot sizes for other consumption rates are then calculated by assuming that the economic lot size varies as the square root of the consumption rate. For instance, in Example I the economic lot size is 234 pieces per lot for the normal consumption rate of 10 pieces per day. For a consumption rate of 5 pieces per day the economic lot size would be approximately $234\sqrt{\frac{5}{10}} = 165$ pieces per lot, and for a consumption rate of 20 pieces per day the economic lot size would be approximately $234\sqrt{\frac{20}{10}} = 330$ pieces per day. It will be noted that these results are very close to those already determined through the use of the full formula for the three different consumption rates.

Effect of Variations in Minimum Attractive Rate of Return

It was stated earlier that the company for whom the study of Example I was made believed that 13 per cent per year was a reasonable value for the minimum attractive rate of return on invested capital, but that the author believed that 20 per cent per year was a better value in this case, in view of the risks involved. If the economic lot sizes of Example I are recalculated, using the same data with the exception that the minimum attractive rate of return is changed from 13 per cent to 20 per cent, it will be found that the economic lot sizes are 139, 202, and 303 pieces per lot respectively for consumption rates of 5, 10, and 20 pieces per day, instead of the economic lot sizes of 160, 234, and 350 pieces per lot originally found in Example I. This shows the effect of the minimum attractive rate of return and how important it is that this rate should be set as accurately as possible so as to include all of the risks incident to the storage of a finished part or product.

Example II

$S = \$3.03$
$P = 200$ pieces per day
$U = 7$ pieces per day
$N = 300$ days per year
$C = \$2.36$
$A = \$0.25$
$(B + I) = 20$ per cent per year
$(1 - \frac{U}{P}) = 0.965$, and was considered to be unity

$$K = \frac{0.2\ (2.36) + 0.25}{2\ (300)\ (7)} = \$0.000172$$

$$Q_e = \sqrt{\frac{3.03}{0.000172}} = 133 \text{ pieces per lot}$$

Table II shows that the difference in total unit charges is negligible for any lot size between 100 pieces per lot and 200 pieces per lot. Also that the total unit charges are increased only one per cent if the lot size is reduced to as little as 50 pieces per lot from the economic lot size of 133 pieces per lot, although this reduction in size of lot reduces the capital tied up in finished inventory by more than 60 per cent.

The economic lot size was found to be 87 and 195 pieces per lot respectively for consumption rates of 3 and 15 pieces per day.

Table II

Q	$\frac{S}{Q}$	C	KQ	V
50	$0.061	$2.36	$0.009	$2.430
100	0.030	2.36	0.017	2.407
133	0.023	2.36	0.023	2.406
200	0.015	2.36	0.034	2.409

Table III

Q	$\frac{S}{Q}$	C	KQ	V
50	$0.013	$1.67	$0.009	$1.692
61	0.011	1.67	0.011	1.692
100	0.007	1.67	0.018	1.695
200	0.003	1.67	0.036	1.709

Example III

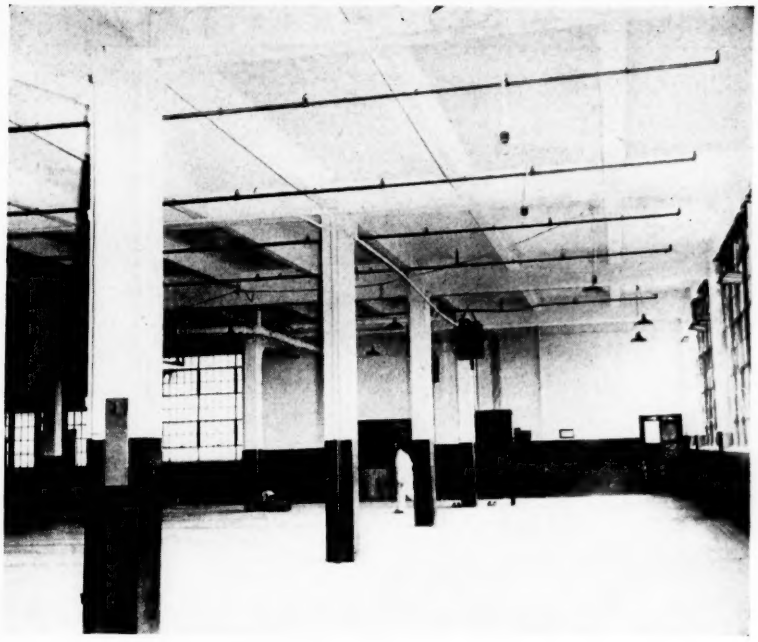
$S = \$0.66$
$P = 200$ pieces per day
$U = 7$ pieces per day
$N = 300$ days per year
$C = \$1.67$
$A = \$0.42$
$(B + I) = 20$ per cent per year
$(1 - \frac{U}{P}) = 0.965$, and was considered to be unity

$$K = \frac{0.2\ (1.67) + 0.42}{2\ (300)\ (7)} = \$0.00018$$

$$Q_e = \sqrt{\frac{0.66}{0.00018}} = 61 \text{ pieces per lot}$$

Table III shows that the difference in total unit charges is negligible for any lot size between 50 pieces per lot and 100 pieces per lot. The management of this company was surprised to learn that the lot size could be reduced to 50 pieces per

(*Continued on page 68*)



Color Plays Important Role in Increased Worker Efficiency

COLOR is an essential factor in increasing production, improving worker morale, and fostering safety and good housekeeping in modern industry.

Color entered industry through the front door of the reception room and office, but today we know the vitally important role its plays in the efficiency and morale of the factory itself.

In one plant, for example, a maze of overhead pipes was painted dull gray to contrast with the ceiling. Workers had the feeling that the low ceiling was cramping them. Production suffered. The gray paint was replaced with a soft blue to blend with the ceiling. The entire overhead mass appeared to be raised by 6 to 10 feet. Morale improved and production gained immediately. "Color treatment" was the solution of this problem.

At one southern plant that makes pipe fittings, a time study showed that workers' output began to fall off about 10:30 in the morning and 3:30 in the afternoon. After the plant had been refinished in color, it was found that production did not begin to slump until 11:00 A. M. and 4:00 P. M. Thus, the manufacturer gained an extra hour per day of peak worker out-put. Again "color treatment" did the trick.

In a completely coordinated color harmony program, the Sherwin-Williams Company has developed 17 harmonies, giving the proper color for the machine, the dado strip, silhouette color, floor enamel, accent color and zone marking color.

Choose by Wisdom Not Whim

Choosing the proper color harmony for a shop is not just a case of guesswork or picking management's favorite combination. The two primary considerations are:

1. General atmosphere in the plant. Cool colors (such as green, blue, ivory, gray) are preferred where the interior of the factory is above normal temperature and where sunlight is excessive. Warm colors (such as peach, yellow, brown, beige, buff) give better results in poorly lighted areas and in departments which receive their light primarily from the north.

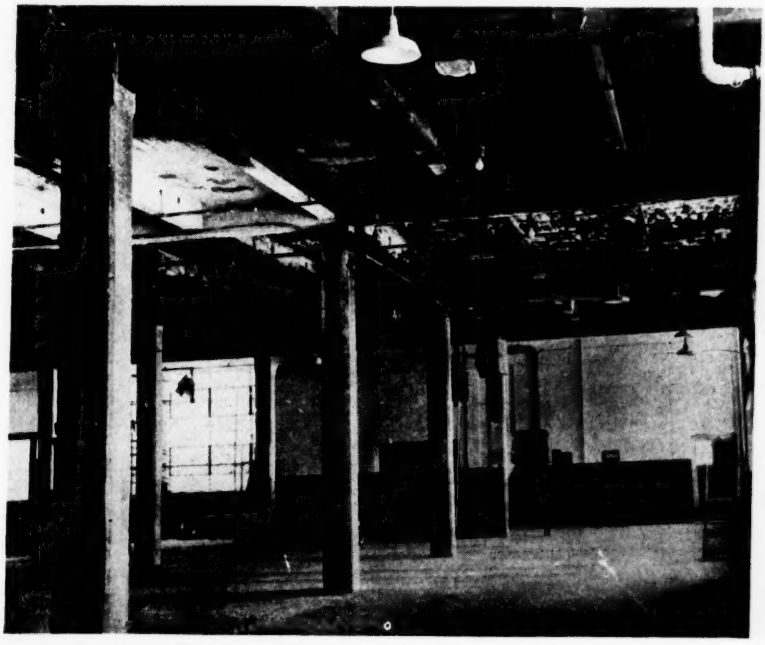
2. Type of employees. In light manufacturing plants where women are employed for example, the more delicate shades of turquoise and peach are preferred. In heavy manufacturing plants where employees are predominantly men, greens, browns, blues are appropriate colors.

Eye-Appeal and Better Seeing

Glare from windows is an important factor in choosing a plant

(*Continued on page* 61)

Pictures on this page show before and after views of a plant interior to demonstrate what color and paint can do.



by James A. Meacham

Above—Ford plant under construction at Atlanta.

Automobile Assembly Moves South

IN its post-war resurgence toward first place in the low-priced automotive field, the Ford Motor Company has put into effect decentralization in many fields in order to reach its announced goal in the shortest possible time.

This program has had a far-reaching and salutary economic effect on many parts of the country for it has meant some new plants and considerable expansion of old ones, additional personnel on the payroll, and, perhaps most significant of all, increased purchasing of locally-manufactured products.

Four new branch assembly plants are nearing completion in St. Louis, Mo.; Metuchen, N. J.; Los Angeles, Cal., and Atlanta, Ga. Parts depots have begun operations in Houston, Tex.; Des Moines, Ia.; Denver, Col., and Seattle, Wash.

In addition to this building program, the company, early in 1946, announced a decentralized system of purchasing under the direction of Albert J. Browning, vice-president and director of purchases.

Ford annually buys goods and services in excess of 700 million dollars from more than 6,000 vendors. Heretofore, the company purchased these items direct through the home office at Dearborn, Mich. Under the new procedure wherever there is a branch assembly plant there is a senior buyer whose function it is to purchase as many locally manufactured products as possible. In many cases such buyers even have purchased for other branches and for the main manufacturing plant of Ford at Dearborn.

In February of this year, top Ford officials made a trip to the West Coast on a purchasing mission with the announced intention of buying 50-million dollars worth of supplies and services in that area each year.

This thinking also is applicable to other sections of the country, notably the South and Southwest. The actual physical problems involved in moving vast quantities of raw materials and labor into such a large manufacturing plant as the Rouge and then shipping the finished product to various points in the country for assembly into cars and trucks have become so numerous and complex that further expansion made decentralization a must.

A typical example of the way Ford is going about meeting these problems was made evident this spring at the Southern Machinery and Metals Exposition at Atlanta, Ga., site of one of the new assembly plants, when purchasing officials displayed to assembled southern manufacturers some of the products for which the company would be in the market when the new plant began operations.

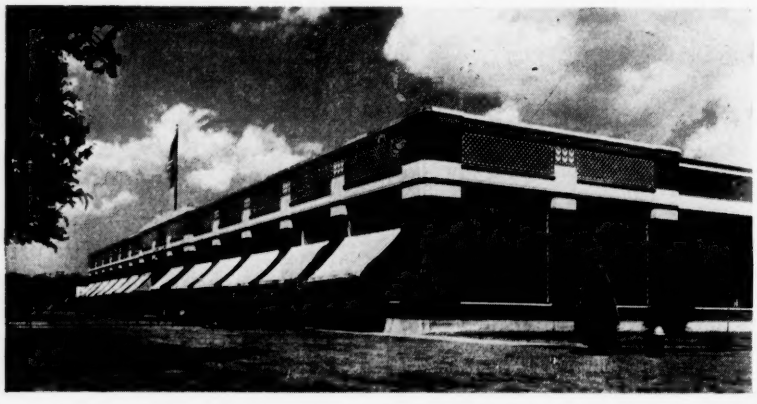
It also was outlined for the manufacturers how, in the past, Ford engineers and manufacturing experts had given their advice and offered their skill to aid producers who wanted to enter the volume manufacturing field. In return the company has learned many valuable lessons from the vendors. It has been a two-way street and the results of such co-operation between company and vendor have been beneficial to the most important man in the picture—the customer—in the form of increased production efficiency and lower manufacturing costs.

In the Southwest, the new $900,000 sales distribution and parts branch in Houston, Texas, began delivering parts in May to the 160 Ford and Lincoln-Mercury dealers in the area where approximately 200,000 Ford-built units are registered. In addition to Ford Motor Company expansion, Ford dealers in the Houston district have expanded or remodeled their plants to the tune of more than one and one-half million dollars.

A modernization program is planned for the Dallas Ford assembly unit as soon as materials are available. Local purchases at the Dallas office are showing steady gains and now have reached a figure of slightly more than $750,000 monthly.

Production facilities at Memphis have been enlarged with a view toward reaching 325 units a day as compared to pres-

Below—Ford plant at Dallas.



ent daily production of 195 units. When material shortages have eased and increased production becomes possible, the Memphis plant also will take on additional personnel.

As an example of what such planning means to the local community, Ford purchasing operations at Memphis have jumped from $2,000 to approximately $70,000 a month.

Reconversion and plant expansion have been slow due to critical shortages and labor difficulties but progress is being made and goals are being reached.

President Henry Ford II, in speaking to a group of manufacturers stated his company's position and thinking clearly:

"In our opinion, the only way to get back to a sound growing economy is to produce. The only way to raise living standards for the whole nation is to turn out more and more goods and services at ever lower costs and prices."

Chemical Society Meeting

Subjects to be covered at the December meeting of the American Chemical Society include heat control and practical application of recent advances in manufacture of synthetic gasoline, as well as the generation of atomic energy.

Dr. Bruce K. Brown, a Standard Oil vice-president will address the Monday dinner meeting. Dr. Lincoln T. Work, of Rahway, N. J., will lead the Monday morning session; Dr. Manson Benedict, presiding at the afternoon meeting. Leaders of the Tuesday sessions will be Prof. Thomas B. Drew, morning; Prof. J. Henry Rushton, afternoon.

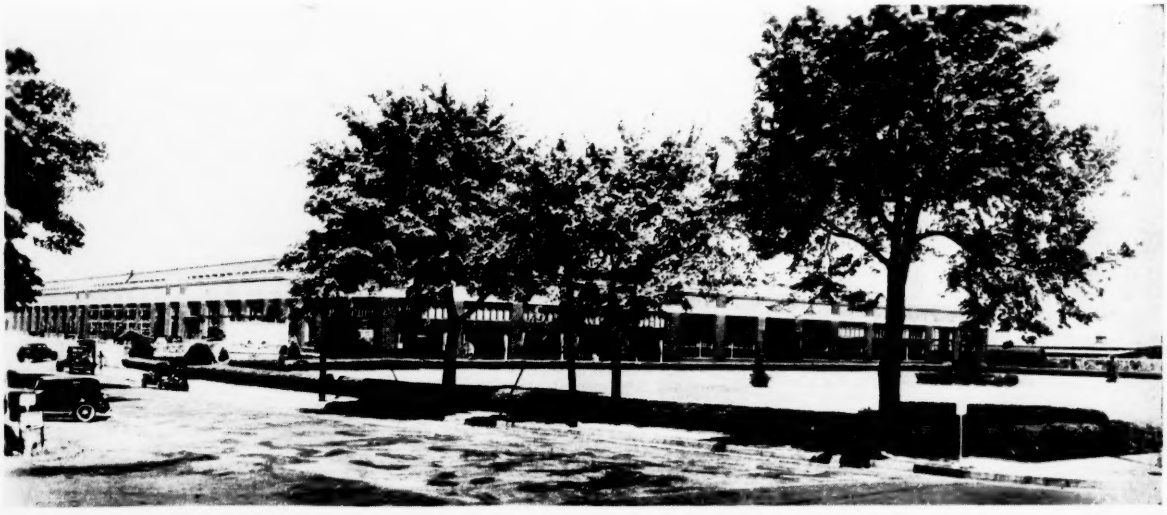
Other participants in the program include: W. E. Winsche, J. B. Rosen, Prof. C. F. Bonilla, Wendell E. Dunn, Jr., Carl F. Kayan, D. L. Katz, R. B. Williams, V. R. Deitz, H. E. Robinson, C. C. Winding, A. J. Cheney, Jr., E. W. Comings, J. T. Clapp, J. F. Taylor.

Also, R. S. Lichtmann, L. H. Mahoney, M. S. Brinn, S. J. Friedman, F. A. Gluckert, R. L. Pigford, G. O. F. Löf, R. W. Hawley, B. F. Dodge, Mario T. Cichelli, Jack Huebler, M. J. Sinnot, C. A. Sibert, W. A. Hall.

Above—The St. Louis, Mo., Ford plant.

Below—Ford branch at Houston.

Below—Ford plant at Memphis, Tenn.



E. A. Yates *G. H. Bourne* *B. E. Smith* *T. W. Martin* *L. C. Parks*

Southerners at Work

Freeport Elects Vice President

Thomas R. Vaughan has been elected assistant vice president of Freeport Sulphur Co. by the board of directors, it was announced today by Langbourne M. Williams, Jr., president.

Mr. Vaughan, a native of Little Rock, Arkansas, is a graduate of the School of Law of George Washington University in Washington, D. C. He joined the company in 1942 and became assistant secretary later the same year. He has practiced law in New York City and in Little Rock.

New Orleans Names Dock Board Director

E. H. Lockenberg has been appointed to the position of port operations director, filling the position recently vacated by the resignation of R. O. Baumbach.

Before his connection with the dock board Mr. Lockenberg was active in the railroad field. He was superintendent of the public cotton warehouse for twenty-one years, up until the outbreak of the war. During the war he served with the Office of Defense Transportation, returning to the dock board in March of 1945 as wharf superintendent and assistant to Mr. Baumbach.

Mr. Lockenberg will be succeeded by his past assistant, C. T. Bayard, who has been with the dock board since 1920, during which time he served as harbor maintenance superintendent, and chief of the harbor police force.

Wachovia Announces Changes

Announcement has been made of two elections and two promotions affecting the official staff of the Charlotte Branch of the Wachovia Bank and Trust Co. as a result of the quarterly meeting of the Bank's directors in Winston-Salem.

Fresca Brown and Joseph H. Robinson, officers of the Charlotte office, were promoted to assistant vice-president; John C. Council, formerly Wachovia auditor, was named cashier of the Charlotte office, and W. Bryan Moore, president of B. C. Moore and Sons, Wadesboro, was elected a member of the board at Charlotte.

Hagan Transfers H. J. Kettler

Herbert J. Kettler, formerly in charge of service engineering in the Chicago area for Hagan Corp., Pittsburgh, Pa. has been transferred to St. Louis to assist J. C. MacFarland, manager of the firm's St. Louis office.

A graduate of the University of Texas, Mr. Kettler has been associated with Hagan Corporation and its member companies—Calgon, Inc., Hall Laboratories and the Buromin Co.—for some years.

Fairbanks-Morse Names Atlanta Manager

Fairbanks, Morse & Co., Chicago, announce the following changes in their sales organization.

J. C. Elmburg, manager of the company's Boston Branch House, has been transferred to the Company's Atlanta, Ga. Branch House to assume the position of manager of that area. He replaces G. N. Van Epps who recently resigned.

V. O. Harkness, who has been manager of the Diesel Division at Chicago Headquarters, has been appointed Manager of the Boston Branch and T. M. Robie of Chicago has been appointed to the position of manager of the General Diesel Sales Division.

Southern Company Officers Leaders in Power Industry

Leaders in the power industry of the South are officers in the newly organized Southern Company, which was recently authorized by the Securities and Exchange Commission to provide the means of retaining four major southeastern electric utility companies under common ownership and also for the purpose of raising equity capital for the expansion program these companies now have under way.

Eugene A. Yates, the president, was formerly chief engineer and general manager of the Alabama Power Co. Long a resident of Birmingham, Mr. Yates was for three decades a strong advocate of the interconnected system of hydro and steam plants and radiating transmission lines in the Southeast. The present system was largely planned and built under his supervision and is recognized as one of the best coordinated systems in the country.

The three vice presidents are James F. Crist, a native of Montgomery, Ala., who has been associated with southern utility operating companies since 1926 and more recently vice president of South Carolina Power Co.; Granville H. Bourne, vice president, comptroller and director of the Commonwealth and Southern Corp., whose properties in Alabama, Georgia, Mississippi and Florida are included in the new plan, and Beauchamp E. Smith, president and director of S. Morgan Smith Co., of York, Pa. R. A. Stephen, secretary and treasurer of Commonwealth and Southern, holds the same position in the new Southern Company.

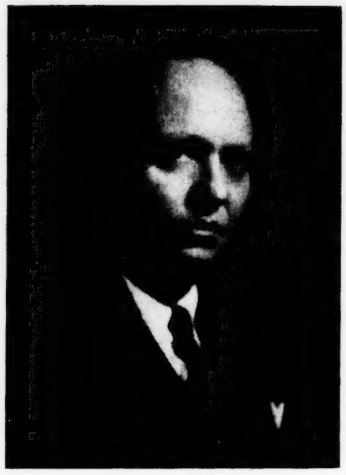
Names on the Board of Directors list of the Southern Company also represent top figures in the power industry. Thomas W. Martin is president and director of the Alabama Power Co., of Birmingham, a member of the Southern group. Georgia Power Co., a second participant in the plan, was represented by Preston S. Arkwright, Jr., who has since died and was succeeded as head of the Georgia company by C. B. McManus.

Other directors of the Southern concern are William H. Brantley, of Birmingham; Percy H. Clark, of Philadelphia; Jacob Hekma, of New York; Justin R. Whiting, of Jackson, Mich., and Pearson S. Winslow, of New York, in addition to Messrs. Yates, Bourne and Smith. L. C. Parks is vice president and general manager of the Gulf Power Co., of Pensacola, Fla.

Preston Stanley Arkwright, Jr.

On November sixth at the Georgetown Hospital in Washington, D. C., Preston Stanley Arkwright, Jr., 44, President of the Georgia Power Co., died as a result of a blood clot formed on his lungs. The utility man had entered the hospital ten days previous after suffering a ruptured appendix. Doctors had declined to operate due to the patient's heart condition.

Mr. Arkwright attended the public schools in Atlanta and then went to Emory University from which he graduated with a bachelor of philosophy degree in 1924, and a law degree in 1926. He was admitted to the bar and joined the law firm of Colquitt and Conyers, general counsel for the Georgia Power Co. The name was later changed to Colquitt, Parker, Troutman and Arkwright, and still later it became known as MacDougald, Troutman, and Arkwright. Fol-



P. S. Arkwright, Jr.

lowing Mr. Colquitt's death, the major responsibility as general counsel for the power company devolved on Mr. Arkwright. In 1939 he was elected one of the directors of the power company. He succeeded to the presidency of the company upon the death of his father. Although not as well known as his father in financial circles, Mr. Arkwright was a prominent corporation lawyer. He severed his official connection with his law firm when he accepted the presidency of the power company.

Mr. Arkwright was a sports enthusiast and a musician of exceptional talent. He was also quite active in many other organizations of both a social and business nature. He is survived by his widow, the former Ann Stringfellow of Atlanta, and two daughters, Ann and Martha.

J. A. Fox Honored

The Washington County Chamber of Commerce, Greenville, Mississippi, gave a testimonial dinner in honor of Mr. John A. Fox who celebrated his seventy-seventh anniversary on November 13th by retiring as active manager of that chamber.

Mr. Fox was born at Jesuits Bend, La., on December 17th, 1870. He attended Tulane University and graduated in 1892 with a B.A. degree. From 1892 to 1902 he did engineering work connected with levee construction in Louisiana and Arkansas. In 1904 he became assistant manager of Chicago Mill and Lumber Co., and contributed greatly to the business record made by that company.

From that date until 1937, when he came to Greenville as Secretary-Manager of the Washington County Chamber of Commerce, he devoted his time and effort to the improvement of river and harbor facilities in the South and West, and he took an active part in flood prevention work in this same area.

Georgia Power Promotions

C. B. McManus, vice president and director of operations of the Georgia Power Co., has been elected president of the Company succeeding Preston S. Arkwright, Jr., whose death occurred on November 6 in Washington, D. C. Dan MacDougald, senior member of the law firm of MacDougald, Troutman, Sams & Branch, was elected chairman of the board of directors.

John A. Sibly, president and chairman of the Trust Company of Georgia, was also elected to membership on the board of directors.

In accepting the presidency, Mr. McManus announced that the company's policies of fair and generous treatment of customers, of employees and of the public would be continued.

Mr. McManus was born in Smithville, Ga., in 1895, the son of Clifford B. Maggie Wells McManus. After receiving his early education in the public schools of Smithville he attended the Alabama Polytechnic Institute at Auburn and was graduated in 1916 with a degree in electrical engineering. Upon finishing college he joined the Westinghouse Co. in Pittsburgh to continue his technical training. He received further specialized training at the General Electric Co.

In 1927 he joined the Georgia Power Co. as superintendent of district operations, after spending a number of years in various important managerial positions in public utility operations. He became assistant operating manager in 1929. He has served as vice president and director of operations of the Company and has been a director since 1945.

Mr. MacDougald was born on a plantation near Columbus, Ga., in 1883, the son of William Alexander and Emily Fitten MacDougald. He was graduated from the University of Georgia in 1910 with a law degree and shortly thereafter opened a law office in Atlanta. In 1914 he became a member of the firm of King and Spalding. In 1935 he joined the law firm of Colquitt, MacDougald, Troutman and Arkwright which subsequently became MacDougald, Troutman, Sams & Branch. For the past 12 years he has been closely associated with the Power Company in the handling of its legal affairs.

Mr. Sibley, a new director of the Company, is widely known as an attorney as well as the chief officer of the Trust Company of Georgia. He joined the firm of King and Spalding, which later became Spalding, MacDougald and Sibley in 1918 and was there associated with the new chairman of the board for a number of years.

Harris Heads Cotton-Textile Institute

George S. Harris, president of the Dan River Mills, Inc., Danville, Va., has been named chairman of the board of the Cotton-Textile Institute, succeeding Percy S. Howe, Jr.

Mr. Harris was born in 1881 at Cedartown, Ga. In addition to being president of the Dan River Mills, he is chairman of the board and a director of the G. B. Stafford Co.

Other officers elected at this meeting were: Arthur M. Allen, Baltic Mills, Industrial Trust Bldg., Providence, R. I., and Charles C. Hertwig, Bibb Mfg. Co., Macon, Ga. as vice-president; Dr. C. T. Murchison, re-elected president for the eleventh consecutive term; and Mr. Paul B. Halstead was re-elected as secretary-treasurer.

Central of Georgia Elects M. J. Wise

Announcement has recently been made of the election of Marion J. Wise as executive vice-president of the Central of Georgia Railway Co. By authorization of the trustee, he will serve as chief executive officer with jurisdiction over all departments.

Mr. Wise came to the Central of Georgia four years ago as a vice-president in charge of the then newly created department of industrial development. He resigned his position as assistant to the president of the Southern Pacific Co. in order to accept the position with the railroad, and also the presidency of the Ocean Steamship Co. for which he was chosen at the same time. It was believed at that time that Mr. Wise's long and varied experience, mostly in the South, in both railway and steamship transportation coupled with his firm belief in the South as a territory with an immeasurably high potential, would make him an extremely valuable addition to the personnel of both of these concerns. In the past four years, he has been extraordinarily successful in forwarding the progress of Georgia and Alabama, both agriculturally and industrially.

Mr. Wise has been active in many and varied fields of business during the past few years. He has been a member of the board of the Railway Express Agency, the Pacific Fruit Express Co., and of the executive committee of the Texas and New Orleans Railway Co. He represented the steamship interests of the Southern Pacific on the executive committee of the North Atlantic-Gulf Steamship association. In addition to being president of the Southern Pacific Land Co., he was a member of several directorates for subsidiary companies of the Southern Pacific.

M. J. Wise

New Products

Drilling and Tapping Tool

Kaukauna Machine Corp., Kaukauna, Wis., announces a new portable horizontal drilling and tapping machine, with a tilting horizontal head for an unlimited number of drilling and tapping operations. The compactness and portability of the machine afford an easy approach to the work, thereby simplifying many difficult machining operations. Full three dimension power traverse and swiveling of the headstock make it practical as well as profitable to perform drilling and tapping operations throughout the range of 45°, above or below the horizontal spindle position.

Maximum application and performance are assured by the speed and feed ranges and machine movements for work from a wide variety of positions. The machine spindle can be placed in virtually any position for drilling and tapping through power elevation of headstock on column; column and sub-base power traverse on the runway; tilting of the headstock 45° above and below the horizontal; and rotation of the column 360° on its sub-base.

Variable Pitch Sheave

A solid steel fractional horsepower variable pitch sheave providing finer adjustment through use of 20 threads instead of the present customary 16 has been announced by Dodge Manufacturing Corp., Mishawaka, Ind.

This sheave is made in the following range of pitch diameters:

Using No. 2 FHP Belts	Using No. 3 FHP Belts
1.9 to 2.9	2.4 to 3.2
2.4 to 3.4	2.7 to 3.7
2.8 to 3.8	3.1 to 4.1
3.4 to 4.4	3.7 to 4.7

All sizes of sheaves will be available in three standard bores, namely, ½, ⅝ and ¾ inches. The ½ inch bore sheave is provided with set screw only but the ⅝ and ¾ inch bore sheaves have both keyway and set screw.

The solid steel construction insures minimum run out. A positive locking device insures firm fastening to shaft.

Hole Punching Unit

Announcement of a new hole punching unit —Wales heavy-duty type "EJ"—has just been made by George F. Wales, president of the Wales-Strippit Corp., North Tonawanda, N. Y., specialists in punching and notching equipment.

By designing this Wales Type "EJ" hole punching unit with a center projection to carry the die, one of metal fabricators' most difficult hole punching problems has been eliminated—punching a series of holes simultaneously in angles, channels and extruded shapes. The center projection may be located to punch these various extruded sections.

Based on the basic Wales patented design, these units are independent and self-contained. Nothing is attached to the press ram. The ram functions only to depress the punches.

All functioning parts—punch, guide, stripping, spring and die—are built in the holder which automatically aligns the punch and die. In action, the full-floating punch located in the top of the holder is depressed by the press ram and is guided through the work and into the die by a long guide. On the down stroke of the ram, the stripping spring is compressed and on the upstroke expands to strip the punch from the work.

For the "Strip" template method of setups, hole locations are drilled and reamed in the "Strip" template for the pilot pin. These templates are combined pattern and base plates which permit the "Strip" templates not in active use to be stored for future runs and the group of type "EJ" units which has been removed is kept in continuous operation on other "strip" templates.

Steam Cleaner

A new "Utility" model Hypressure Jenny steam cleaner has just been announced by the Hypressure Jenny division of Homestead Valve Manufacturing Co., Coraopolis, Pa. It is a full-powered, extra heavy duty, all-purpose steam cleaner.

In addition to super cleaning capacity and low price, the new unit features quick starting, simplicity of design and operation; rugged welded unit construction, complete accessibility of all working parts, continuous electric spark ignition, non-clogging heating coil, and pressure atomizing oil burner.

A choice of either oil or natural gas burner, and electric motor driven or gasoline engine driven mechanism, make the new unit adaptable to almost any operation requirement.

1,000-Pound Fork Truck

The Baker Industrial Truck Division of the Baker-Raulang Co. announces the Type FQH-10 center-control fork truck which is designed to meet the need for a small, light-weight and low-priced fork truck of 1,000 pounds capacity.

Developed about four years ago, an initial model was built and this truck since has been in continuous use. After the first truck had undergone a thorough test other experimental models were built embodying certain improvements and other desirable changes and were subjected to exhaustive proving first in the Baker plant and afterwards in other plants

Baker Industrial Truck

under actual service conditions. A pilot truck of the production model has been built and tested and quantity production has been started for delivery in March, 1948.

The Baker Type FQH-10 fork truck finds application in all plants where narrow aisles, congested areas, limited floor capacity, small and low capacity elevators are a factor, and wherever loads can be limited to 1,000 lbs. It meets the needs of small plants that cannot justify the first cost of more expensive equipment, small warehouses, small distributors and many large plants where special conditions exist.

This truck has a 36-inch wheelbase and an overall length, exclusive of forks, of 53⅝ inches. To make a right angle turn the truck requires only 67½ inches plus the length of the load, and since the truck is designed for a 1,000-pound load 30 inches long, a right angle turn can be made in 97½ inches.

Impact Cushioning Idler

Belting engineers of Goodyear Tire & Rubber Co. have developed a new type impact-cushioning idler for belt conveyors, supplementing the company's previous application of pneumatic tires beneath belts to absorb the shock of falling material.

Non-pneumatic, the new cushion type idler consists of rubber rings mounted on the idler core instead of the conventional rubber-covered steel idler. By comparison, maximum deflection is about six times greater, according to W. P. Hallstein, assistant manager of Goodyear's belting department. High resiliency of the rubber rings solves the impact problem by decelerating the lump, he said.

The new device is an adaptation of the principle which led to using a battery of pneu-

Goodyear Conveyor Idlers

matic tires, mounted on shafts revolving in bearings, to protect the belt at dumping points in coal and ore mining, and rock products operations.

The use of tires as shock absorbers enables a conveyor belt to withstand extreme impact on operations handling heavy lumps up to a ton-and-a-half size. The rubber-ring idler is designed for less severe impact conditions which do not require the use of tires.

Condensate Return System

The W. M. Acker Organization, 3167 Fulton Rd., Cleveland, Ohio, is manufacturing a condensate return system that provides constant flow of steam, and rapid return to the boiler of high temperature condensate thereby eliminating individual traps in steam operated equipment and shop lines. The new equipment accumulates the condensate by gravity, and returns it to the boilers at temperatures ranging up to 350 degrees. The manufacturer states that all water fed to the boiler through the system is deaerated by effective liberation of free oxygen and non-condensable gases detrimental to metals under heat and pressure.

The systems are available for steam pressures up to 250 lbs. and are manufactured in a range of sizes for boilers from 10 hp and up. Application can be made to handle condensate and make-up water in single and multiple for larger requirements. No pumps or other mechanisms are required for operation.

It is claimed that increased efficiency in condensate returns results in savings of from 13 to 27 per cent in fuel costs and increases production of steam heated equipment up to 30 per cent. Complete literature and data are available upon request.

Laboratory Mixer

A mixer called the "Minimix" and intended for laboratory use, or small batch production, has been put on the market by Mixers, Inc., East Allen St., Philadelphia, Pa.

It is horizontal in design, 34 inches long, 13 inches wide and 18 inches high and has a capacity of approximately four gallons per batch.

The internal mechanism consists of a product reduction chamber at one end of the mixer. In this chamber are housed a series of four mixing and kneading arms which smooth out all unevenness of the product, and two scraper arms which are inclined at an angle and so spaced that they prevent the product from adhering to the chamber walls and keep it in circulation. The driving mechanism is housed in an enclosed chamber and separated from the main body of the mixer by a well which prevents grease or oil reaching the mixing chamber or the product getting into the gears.

The mixer works equally well on dry products or products of the consistency of putty as an example. It is made of stainless steel and can be supplied either plain or jacketed for accurate temperature control.

Temperature Control Unit

Niagara Blower Co., 405 Lexington Ave., New York 17, N. Y., has produced a coolant temperature control unit for application to New Britain-Gridley automatic screw machines. The new unit increases production by eliminating warm-up operations and subsequent tool adjustments as well as preventing variations in the machine work caused by temperatures rising during operating periods.

When the screw machine is operating the coolant is kept at a pre-determined temperature by the constant evaporation of moisture on the outside of tubes through which the hot coolant oil is flowing. This method removes 1060 Btu per lb. of water evaporated. When the machine is stopped, a fall in the coolant temperature is prevented by the automatic operation of an electric element, which is also used for pre-heating after a longer shut-down period. Whether the machine is running at high speed, or stopped, or remains idle over night, the temperature of the coolant is always within 2 or 3 degrees of a predetermined point, effectively preventing harmful contraction or expansion of working parts. The unit can be adapted to all multiple spindle automatics.

Bookkeeping Machine

R. C. Allen Business Machines, Inc., Grand Rapids, Mich., has released a new desk model bookkeeping machine which they claim is so simple to operate that a trained operator is unnecessary. The machine is finished in pearl gray, is compact, in the low cost field, and available for prompt delivery. It will post statement, ledger, and proof journals simultaneously; and is readily adaptable for commercial, bank, or payroll work. No special stand is necessary, it can be used on any desk.

Incorporated into this machine are such improvements as front feed form insertion, true credit balances printed in red, tabulator bars easily changed, and visible dials. In addition, automatic dating, automatic carriage control, non-add and substract, and automatic carriage tabulation are also featured, making it a highly efficient and fast operating machine according to the manufacturer.

Moisture Remover

Combustion Engineering Co., Inc. of New York City has announced a new development in engineering known as flash drying. It is applicable to the removal of moisture from many waste materials, thereby salvaging these materials either for useful purposes or else renders them into a more suitable form for disposal.

Installations using this development are pointing the way to the solution of the growing problem of stream pollution. Flash drying is applicable to sewage sludge, fines from coal mine washeries, wastes from food products and packaging plants, spent grain from breweries, and a large number of waste products from chemical and processing plants.

The flash drying system operates by drying moisture laden materials through exposing them in a disintegrated or granulated form, to heated air under conditions of high velocity and turbulence.

Protective Plastic

The Reyam Plastics Products Co., 1525 East 53rd St., Chicago, Ill., has announced a new finish which it perfected during the war. This new product helps solve the problem of protecting the painted surfaces and finished metal trim of airplanes. It is a water clear liquid plastic finish that forms a brilliant durable coating on the surface covered.

A complete plane can be refinished in a short time with this product, and cars and trucks can be covered in 30 minutes. It is said to be impervious to heat, cold, moisture, alcohol, alkalies, caustic soaps, and most chemicals.

Solenoid Valve

In further developing the compressor control announced some time ago, the Johnson Corp., Three Rivers, Mich., is now utilizing the company's new direct operated solenoid valve. This now provides everything necessary for complete automatic control of the water supply to water cooled compressors—protects against any dangerous overheating and at the same time effects considerable water savings.

This solenoid valve is a direct operated type—has no auxiliary pistons. It is a heavy duty valve in all respects, and was developed to make the simple design and quick opening of solenoid valves available for a really practical range of services.

It handles temperatures up to 400° F. and in some sizes will operate under differential pressures up to 150 lbs. It is being used very successfully on boiler feed lines, and for a wide variety of automatic flow control applications.

In the Johnson compressor control, this solenoid valve is used to admit water to compressor whenever the regulator on storage tank calls for more pressure. The compressor itself is not started until water flows through the compressor and completes an electrical circuit with an electrode mounted in a holder on the discharge line.

This Johnson control can also be furnished for use with unloading compressors. In all cases it protects against the compressor operating without cooling water, and yet prevents unnecessary waste of water.

New Electric Hoist

The Ford Chain Block Division of American Chain & Cable Co., Inc., of York, Pa., has just announced a new line of electric hoists named Whippet.

The Ford Whippet has been designed to meet the demands of modern high speed production. Rugged construction and low operating costs make this hoist adaptable for many heavy duty lifting jobs. The capacities of this hoist range from 250 to 2000 lbs. They can be furnished with trolleys, either parallel or cross mounted. In addition, they can be furnished with hook suspension or for rigid or bolt suspension. The standard lift of this sleek, smooth running, wire rope electric hoist is 12 ft.; however, 20 ft. lift can be furnished when specified. Easy to operate push button control; preformed wire rope and grooved drum provide greater safety and long wearing; all parts are easily accessible; motors meet NEMA standards; pull chain and handle supports push button station—is used to pull loaded or unloaded hoists along runway beams. And there are many more! The Whippet can be used in production service, warehouses, machine shops, load platforms—anywhere a load is to be lifted. It is a new type of electric hoist—made to insure maximum safety, minimum wear and faster lifting.

Cutting Machine

DeWalt Cutting Machine

"Every time you change the cutting tool you have another machine." This phrase describes the new Cut-Master model announced by DeWalt, Inc., 63 Fountain Ave., Lancaster, Pa. This one machine combines the functions of many machines and is ideally designed for all-purpose cutting.

Like preceding DeWalt units, safety, accuracy and ease of operation are the basic considerations in the development and construction of the new "Cut-Master" model. Easily visible, single degree, calibrated scale are provided for miter, rip and bevel cutting. Simple mechanism alignment adjustments are provided to maintain the accuracy of every setting on the DeWalt machine and are available to the operator for the entire life of the machine.

New kickback device featuring multiple dogs, which can be put into operation with a simple flick of the wrist, is an exclusive safety feature for ripping. Front elevation mechanism, with an adjustable crank handle, is conveniently located in front of the operator to facilitate elevation of the machine. Start-stop switch control is deeply recessed on front end of machine arm another new safety feature. The new wide work table provides for easier handling of materials or in set-ups for "gang" cutting operations.

The machine is powered with the new DeWalt-built, direct drive motor, which is wound with Formex Fiberglas insulation, furnished with grease-sealed-for-life bearings that require no lubrication, self-cooling fan and installed in exclusive heat-treated aluminum case. Model is available in 3, 5, and 7½ horsepower sizes for any voltage, cycles and phase. Delivery is prompt. These new features combine to form the new model . . . considered by DeWalt technicians as the finest development in the radial saw industry since the first radial saw was invented by R. E. DeWalt in the early twenties. New catalog furnished on request. Write mentioning this magazine.

New Tire Tread

United States Rubber Co. has announced development of a new tire that provides longer wear and greater safety. Developed for use as original equipment on new cars, this new tire is now on the market as a regularly priced tire.

The tires flatter tread profile assures longer wear than previous standard priced tires. It has eight rows with hundreds of extra gripping edges designed to check skids in any direction. Tire noise is reduced by a staggered design of safety blocks.

Fast Electronic Tube

Remington Rand, Inc., Norwalk, Conn. Division, has invented an entirely new electronic tube that they have named the "magic Renton." It is said to be ten times as fast as any tube of this type ever produced.

Because of its great speed, the tube is expected to have many uses in the mechanical and electrical world. One of the new tubes will replace hundreds of electronic tubes and thereby eliminate complicated circuits.

Plug Valves

H. K. Porter Co., Inc., 48th and Harrison Sts., Pittsburgh 22, Pa., announces development and production of an advanced design of lubricated plug valves. These valves assure complete and leak-proof shut-off, elimination of leaks through the stuffing box, ease of operation, and trouble free service.

The new design is particularly applicable to manufactured and natural gas operations, refinery installations, oil production, and the chemical and processing industries. The valve is available in semi-steel, carbon steel, alloy and stainless steels.

Steam Radiator Valve

Soon to be placed on the market is a steam radiator valve which automatically controls the temperature of each radiator on which it is installed. It is a product of the Heat Timer Corp., 160 Fifth Ave., N. Y.

This new design permits room by room variation of heat adjusted to the preference of the occupant. In appearance it is like any other radiator air vent, although smaller in size, and may be installed on all one pipe steam systems whether hand fired or automatically fired, and it will operate with any fuel.

Portable Repair Unit

A revolutionary workshop on wheels—the Sherman Farmcrafter—was announced by Sherman Products, Inc., farm equipment manufacturers of Royal Oak, Mich.

The Farmcrafter was engineered by men experienced in farm mechanization. It is a tractor-operated machine shop which is easily mounted on the splined shaft of a tractor power take-off. It provides the farmer with a grinder, a drill press, an assortment of high speed drills, plus a flexible shaft that takes many standard attachments.

Development of the Farmcrafter followed lengthy studies of farm needs. It eliminates the necessity of a farmer stopping work in the fields to go back to the barn to make a repair or sharpen a tool. He can make his repairs on the spot by merely harnessing his tractor power to the Farmcrafter. The tractor does the work. No electricity is required. This aid helps increase farm production because of the time saved. Farm tools can be kept sharp and always in repair.

Fitting Prevents Leakage

A new type tube fitting employing a hardened alloy spring steel sleeve is announced by the Flodar Corp., 331 Frankfort Ave., Cleveland, Ohio.

The manufacturer claims its new grip tube fitting will seal higher fluid pressures, absorb excessive vibration and through proper support of the tube prevent breakage at the flare.

The fitting consists of three parts: a connector body, a tightening nut, and the contractible sleeve which grips the tube with slotted, spring steel fingers when the tightening nut is turned.

Flodar grip tube fittings are manufactured in sizes ¼ to 1½ inches and are available in straight, union, elbow, side tee, tube tee, and cross, both male and female.

Dodge Flexible Coupling

Dodge Flexible Coupling

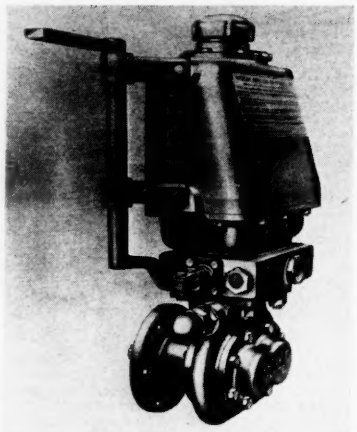
A new pin type flexible coupling incorporating the Taper-Lock bushing used successfully with V-belt sheaves has been announced by the Dodge Manufacturing Corp. of Mishawaka, Ind. Use of this bushing not only insures fastening to the shaft with firmness of a shrunk-on fit, but also makes reboring unnecessary. The center disc is of oak tanned sole leather providing flexibility, resiliency and strength. Compact design occupies minimum space on shaft and there are no projecting parts. Center disc can be easily removed by loosening coupling flanges and sliding them apart on shafts. Large diameter centerless ground pins which are pressed into the flanges can be easily renewed. Coupling is machined all over to insure balance and true running.

(*More on page 50*)

New Products

(*Continued from page 49*)

Hydraulic Products



LaPlant-Choate Unit

LaPlant-Choate Manufacturing Co., Inc., of Cedar Rapids, Iowa, is offering a new line of hydraulic products — including hydraulic pumps, motors, valves, cylinders and a compact 3-in-1 power unit which incorporates in one design, a pump, control valve and reservoir.

Pumps, motors, and power units are available in four sizes—15, 25, 40 and 60 GPM. Cylinders are available in three sizes—4, 5 and 6-inch diameters. Valves come in two sizes—for control of flows up to 50 GPM and 70 GPM.

LaPlant-Choate pumps and motors include such design features as interchangeable spur-type gears, needle roller bearings, positive lubrication, and bronze reversible thrust plates. The pumps are designed for automotive, portable or stationary installations and may be electric motor or engine driven. The power unit incorporates some revolutionary principles such as surge control, a supercharged pump and small capacity reservoir. Valves are spool-type, three positions (float position optional) and self-centering and may be had with or without automatic surge control. Cylinders are double acting and can be mounted in any position. Pistons are ring-type for high pressure sealing with piston rods chrome plated.

Time Switch

Developed by Palo-Myers, Inc., 81 Reade St., New York, a new switch, known as the Palo Time Switch Sr., is described as a self-contained unit, incorporating the necessary equipment to turn on or off any type of electrical laboratory apparatus on a predetermined time schedule, it operates at 110 volts, AC. Among the suggested uses for the Palo Time Switch Sr. are: turning on a furnace or oven in the morning before the laboratory opens, turning off processing equipment after closing time, if work is not finished during the day, the automatic timing of such processes as sterilizing, centrifuging, drying, drilling, evaporating, etc., and to insure that certain types of equipment in daily use are turned off at closing time.

Tubeless Tire

The tubeless tire is to be a commercial reality within a couple of months says B. F. Goodrich Co., who last May revealed that it had a self-sealing tubeless tire that worked. Practically all the production up to now has been going to company and big-customer personnel for first-hand observation of performance. Reports are that the tires have a hard-to-explain but definite quality of extra-easy riding, and they go for many months on end without losing any perceptible amount of air pressure, thanks to the special composition of the innermost ply. There is an extra inner layer, through the crown and shoulder area, of very gummy rubber which automatically seals punctures, even those made by very heavy spikes and chisel-like hunks of metal. Among things the tests have shown is that it has much higher heat dissipation at sustained high speeds than conventional casing-and-tube combinations, BFG engineers report.

Steel Stamp Holder

A new semi-universal self-centering and self-aligning holder for marking various sizes of solid round bar stock with part numbers, serial numbers, heat treat data, etc., has recently been added to its line by New Method Steel Stamps, Inc., 147 Jos. Campau, Detroit 7, Mich.

This round bar marker consists of the holder, a Vee block guide, a clamping pin, and either individual type or a logotype engraved with the required lettering, etc. The logotype or individual type fits into the grooved slot of the holder. The Vee guide slips over the holder and marking die. Assembly of the marker is completed with the insertion of the clamping pin through the guide slots of the Vee guide and the groove in the logotype. The Vee guide slides up and down, automatically centering and aligning the stamp on bars of various diameters when the stamp is in use.

This round bar marker is of a "semi-standard" design since Vee guides of various sizes —and marking dies containing a wide range of information—can readily be made to suit individual requirements.

The marker is of hardened steel throughout, each piece accurately ground to size. The handle is knurled for safe operation and tempered for long service under severe conditions.

Airport Runway Lights

A compact airport lighting package built to CAA specifications and containing all the components necessary for lighting runways from 1800 to 7000 feet has been jointly announced by American Gas Accumulator Co. and the Lighting division of the General Electric Co.

Included in the kit are Type IL insulating transformers, an easily-installed control cabinet, direct burial-type cables cut to required lengths, elevated runway markers, and threshold, taxiway, and obstruction lights. The control cabinet contains a constant-current regulator, runway brightness and selector controls, and protector relays.

The system is easy to install because every connection from the power receptacle all the way through to the lamps is plugged in through the use of waterproof moulded rubber plugs.

Fire Fighter

Walter Kidde and Co., Belleville, N. J., has announced a new 40-gallon foam fire extinguisher engine. Discharging 450 gallons of fire-killing foam, the unit will smother fires involving ordinary combustible materials and fires caused by inflammable liquids.

The unit is mounted on 50 inch wheels with 2½ inch steel tires, and can be moved about rapidly and easily. There is fifty feet of 1¾ inch coupled chemical hose with a shut-off discharge nozzle, which offers the operator a wide radius of action.

Small Tool Set

Three tools and a leather kit comprise a high-utility set, the 9900C, announced by the Plomb Tool Co., Los Angeles 54, California. The tools—a 6-inch combination slip-joint plier, a 6-inch adjustable angle wrench, and an 8-inch plastic-handle screwdriver with 9/32-inch bit—will handle most odd repair jobs and are claimed to be the handiest tools to have around. These same tools are used often for professional jobs. The 7-inch by 9-inch leather kit is finished in red and bears a gold-imprinted design. Four slots in the kit permit it to be carried on a belt or to be hung most anywhere. The three pockets are wide enough to hold extra tools.

Corrosion Resistance Rule

New tool for judging corrosion resistance of non-ferrous and stainless steel alloys is in easy-to-operate slide rule form.

V. A. Spoehr, General Sales Manager of the H. M. Harper Co., 2620 Fletcher St., Chicago 18, Ill., announces free distribution of the new Harper computer of corrosion resistance as "an invaluable aid to men who buy or specify metals to be used in corrosive environments." It is based upon exhaustive tests made by one of the foremost metal men in the country and classifies the resistance of 13 non-ferrous and stainless steel alloys in 142 corrosive applications with degrees of excellent, good, fair and no good. Copious footnotes broaden its scope of applications to include most of the common uses and many unusual ones.

The Harper Co. manufactures fastenings specifically and specializes in brass, bronzes, monel metal and the stainless steels. They make nothing from common steel. The computer obviously facilitates selection of their line of bolts, nuts, screws, washers and other fastenings, but its utility goes beyond fastenings into all phases of the broad metal-working industry and should be extremely useful to anyone faced with a corrosion problem in manufacture or maintenance.

Humidity Sensing Element

A new and highly reliable humidity sensing element is offered by the American Instrument Co., Silver Spring, Md., for such applications as: tobacco curing; air conditioning; grain and seed storage; film manufacture; food manufacturing and processing; kiln drying of wood and its products; packaging and preservation; determining moisture content.

Operation of the element is based on the ability of a hygroscopic film to change its electrical resistance instantly with microchanges in moisture content. This element will provide highly accurate measurements over a period of years, and is guaranteed to retain an accuracy within the limits of plus or minus 1½ per cent relative humidity for at least one year. It covers the range of 7 per cent to 100 per cent relative humidity.

Plastic Maps

Millions of New Yorkers are now observing daily a most attractive and useful new addition to subway service—colorful, graphic lamicoid guide maps, produced by the Mica Insulator Co., 797 Broadway, Schenectady, N. Y.

These new guides, showing 250 miles of unified subway and elevated lines, are produced in full color by the Hagstrom Map Co. and laminated by Mica Insulator Co., Schenectady, N. Y. They owe their tough, hard surface, resistance to water and solvents, light stability and mar resistance to American Cyanamid Co.'s Melmac laminating resin from which the surface is made.

When the Board of Transportation decided to unify its system and install new maps throughout all stations, specifications were set up as follows: "The maps shall be subject to such tests as are required by the Engineer. The completed maps shall resist heat, water, oil, kerosene, benzine, alcohol, grease, nail polish remover, lipstick and other similar substances without showing signs of deterioration." The finished product fulfills all of these requirements.

Foot Control Switch

Hart Manufacturing Co., 110 Bartholomew Ave., Hartford, Conn., has developed foot control switches designed for use in industry. These switches are compact and sturdy and may be mounted either on the floor or on a machine by screws. If desired, the product can be utilized unmounted. The design allows loading up to 35 amperes.

Large Grinding Mills

Four grinding mills recently built by Nordberg Manufacturing Co., Milwaukee 7, Wis., set two records for size.

Two wet grinding ball mills, 10 feet 8 inches inside diameter by 17 feet long, built for Missouri Portland Cement Co., St. Louis, Mo., are understood to be the longest mills of this diameter ever built. Railway clearances have prevented manufacturers exceeding 10-foot 8-inch diameters.

Two 9 feet 6 inches inside diameter by 32 feet long two-compartment dry grinding mills built for Consolidated Cement Co., Cement City, Mich., and for Trinity Portland Cement Co., Houston, Tex., also set a record in that they are the longest mills of this diameter ever built.

Nordberg Grinding Mill

Ludox—Material Strengthener

A new fluid solution of "sand" having a number of unique chemical and physical properties—"Ludox" colloidal silica—was announced by E. I. du Pont de Nemours and Co.

Experiments in the laboratory and in the field have shown that it combines with many other materials, and serves to strengthen them.

Du Pont chemists believe that "Ludox" may eventually be employed to advantage in the manufacture of many articles, such as elastic thread for many types of apparel; rubber sponge for mattresses and upholsteries; and to produce better wearing textiles. It may also be used to improve the cements used in shoe manufacture, to treat paper, and in other fields.

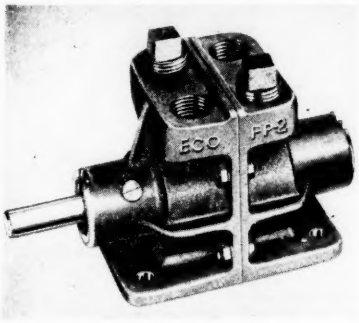
The new chemical is now available in small commercial quantities. Foreseeing a large demand, however, the Grasselli Chemicals department of the Du Pont Co. plans to have it available in increasing amounts by early 1948.

"Ludox" colloidal silica contains the elements of common sand in a relatively high state of purity, and in a highly subdivided form, dispersed in water. The silica particles, less than one-millionth of an inch in diameter, are prepared by a new patented process. It affords a means of modifying many other materials to utilize the inherent properties of silica; namely, mechanical strength, resistance to atmospheric and chemical agents, and resistance to heat. These qualities suggest that "Ludox" may find wide application by industry in the compounding of rubber, for the surface treatment of paper, in leather dressings, and for numerous other uses.

Gearless Pumps

A new line of gearless pumps for general industrial use, has just been announced by Eco Engineering Co., 12 New York Ave., Newark 1, N. J., manufacturers of pumps and precision parts.

Based on the successful principle of ECO gearless pumps, which have been in use in the marine field for the past twelve years, the newly designed pumps include several special features and improvements which make them ideal for the handling of practically all types



Eco Gearless Pump

of liquids. Chief among the improvements is the double impeller design which gives a strong flow against pressure.

Bodies are now available in stainless steel, monel and bronze to meet a wide range of industrial conditions. Body of pump is stated by the manufacturer to last indefinitely. Every wearing part of the pump can be easily replaced, if necessary. All pump parts which come in contact with the liquid handled can be adapted for that special purpose.

Glass Curbs Glare

Libbey-Owens-Ford Glass Co., Toledo, Ohio, has announced the development of a double paned glass window that promises wider and clearer vision to railroad passengers. The new unit is said to resist fogging and frosting, and also helps to filter out the infra-red rays of the sun. An insulating unit by reason of the dehydrated air space, the glass is said to increase the efficiency of heating and air conditioning equipment, and eliminate the cold drafts frequently encountered in winter travel. Because it is sealed against entry of both dirt and moisture, only two surfaces need to be cleaned. This is also a factor insofar as cost and time are concerned in the maintenance work that must be done between runs.

Pliofilm

Pliofilm, transparent and moisture-proof film product of the Goodyear Tire & Rubber Co., which since the war has been used exclusively for packaging of perishable foods and other like commodities, is once more made available to fabricators for use in shower curtains, rainwear, garment bags, ladies' accessories and the like.

In making the announcement the chemical products division said lessons learned during the war, when the entire output of this tough natural rubber-based material was used for the protection of airplane engines for the armed forces, have resulted in an even stronger and softer Pliofilm than that available to the fabrication field in prewar years.

After the war ended and until this time, Goodyear's output of this material has been moving entirely into the food packaging field, where because of its extremely low moisture-vapor transmission rate, plus its excellent heat-sealing qualities, it has earned an enviable reputation.

The product will be made available initially to companies which before the war had been listed as Pliofilm fabricators.

Condensing Units

New light duty ½ hp. condensing units are rolling off the production line at Jack & Heintz Precision Industries, Inc., 17600 Broadway, Cleveland, Ohio.

Two models, the R-50A and the R-50B, were designed by Jack & Heintz refrigeration engineers to fall into the light duty classification to simplify selection of sizes in borderline cases where an ordinary "third" might not provide sufficient capacity and a heavy duty "half" would be impractical from a cost standpoint.

These new units broaden the J & H line and are expected to help meet the heavy demand of refrigeration wholesalers and equipment manufacturers now absorbing the record production of the company's 1/4 and 1/3 hp. models.

Arc Welder

Trindl Products Ltd., 17 East 23rd St., Chicago 6, Ill., has announced that several improved, general purpose, limited input transformer-type welders have been added to its job-tested welder line for use on single phase, rural, and other power lines of limited capacity.

Designed to conform with both REA and NEMA specification requirements, these new improved welders are fully approved by Underwriters Laboratories and are available both with and without power factor correction in output ratings of 130 and 180 amperes.

These new models—130B, 130C and 180B and 180C, which are highly recommended and preferred for farm, automotive and general industrial maintenance and production welding because of their reported economy, performance and dependability, bring to the farmer, automotive and general industrial shop a welder ideally suited for all types of repair work. These welders have 36 fool-proof secondary output current heat stages ranging from 20 amps to their rated maximum secondary outputs of 130 and 180 amps respectively.

Class B spun glass type insulation is used throughout. Natural ventilation, no moving parts and sloping Vernier-type Control Panel, are only a few of the many outstanding features of this equipment.

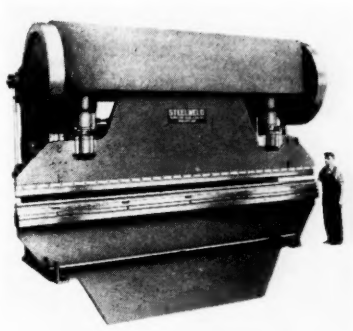
Flexible Tubing

A revolutionary type of flexible tubing that has the high flexibility of rubber and the sturdiness of steel, according to the manufacturer, is now being offered to industry. Named Ronaflex, the tubing is described as tested up to pressures of 980 p.s.i. Extremely flexible, it can be bent, kinked, twisted, yet provides quick free-flowing transmission of air, water, gases, oil, and volatiles says the Ronaflex Tubing Co., Inc., 7200 Powers Lane, Philadelphia, Pa.

This new tubing consists of a tough rubber tubing protected by strong steel wire braid cover to withstand abrasion, severe wear, and pressure. Rubber tubing is made of specially compounded synthetic rubber to resist the effects of oil and volatiles, while braiding is constructed of either galvanized or stainless steel, aluminum, or bronze for specific conditions.

To make Ronaflex tubing more useful, it is available with hi-speed, snap-on couplings that can be connected and disconnected in one easy operation—in one second. This unique coupling is precision-made of aluminum to resist rust, corrosion, and heavy wear whenever frequent disconnection is required.

Large Metal Press



Steelweld Bending Press

A new 500-ton press with unusually long bed has been added to the Steelweld bending press line manufactured by the Cleveland Crane and Engineering Co., Wickliffe, Ohio, to satisfy an increased demand for machines that will handle larger and heavier sheets of metal.

This press, known as a model Mo6-14, has a 20-foot bed and ram which permits bending steel plate up to 20 feet x ⅜-inch or 14 feet x ½-inch. Twenty-one-inch bed extensions on both ends make possible horning operations. To minimize deflection and assure accuracy, the bed extends 42 inches below the floor.

This is a two-speed machine which can be operated at either 7 or 20 strokes per minute. It is equipped with tonnage indicators on both ends that show the loading to which the machine is subjected. A clutch knock-out mechanism disengages the clutch when the press is overloaded. The back gauge being motor-driven, is quickly and easily adjusted to proper position.

The machine shown is operated by a mechanical foot treadle, but when desirable, air-electric control can be provided enabling the use of an electric foot switch which may be slid around the floor in front of the machine to any position most convenient for the press operator. This type control is especially recommended for fast production.

Steelweld presses are available for bending, forming, blanking, drawing, rubber-forming and multiple-punching. Extra wide bed and ram may be had to accommodate large dies and other features may be incorporated to suit special conditions.

Refrigerator Air Filter

A new air filter made of aluminum to be used on refrigerators has recently been produced by the Presco Co., Kansas City, Mo. The importance of this filter lies not only in the fact that it modernizes the home unit, but that it provides a method whereby the air in the box may be kept fresh because the filter absorbs all of the odors.

This aluminum container is flat, approximately the size of a folded newspaper, and is filled with pellets of activated carbon which are said to take up thousands of times their own volume of odorous gases, and will not lose their effectiveness for many years.

Extra Power Supply For Welder

An important new feature of the recently announced P&H Model WX-200 portable arc welder is its extra power supply. Offered as optional equipment at small extra cost, the unit provides 1½ kilowatts of alternating current at 115 volts, single phase. This enables operators to hook up electric lights for floodlighting while welding. It also permits the use of electric powered tools, such as grinders, chippers, drills. Any universal AC-DC portable tool may be operated from this additional power source.

The welder having this feature was announced recently by the Harnischfeger Corp., Welding Division, 4400 W. National Ave., Milwaukee 14, Wis., manufacturer of P&H products. The P&H WX-200 Welder, available as a trailer or stationary model, is an N.E.M.A. rated machine of 200 amperes, but has a welding service range of from 30 to 260 amperes. The welder has just one control for any desired welding heat, from minimum to maximum capacity.

(*More on page 52*)

New Products

(Continued from page 51)

Tunnel Kiln

A new tunnel kiln recommended for small batch production work, firing of ceramic parts, and heat treating of small parts on a production basis has just been announced by the manufacturer, the K. H. Huppert Co., 6830 Cottage Grove Ave., Chicago, Ill. Featuring an electric heating element providing a maximum temperature of 2200° F., this kiln is made ready for immediate operation by simply attaching the line to the fused switch box in the unit.

The new kiln is the pusher type, with small refractory trays being pushed through the inside of the 33-inch firing chamber by means of a variable speed drive. The firing zone is actually 10 inches long, and the size of the tray is 2⅝ inches by 3¾ inches. Pusher mechanism as well as provision for loading and unloading is self-contained.

Constructed of No. 14 gauge steel, the new kiln has a green alpo baked-on enamel finish. Supporting framework is heavy angle iron. The entire unit's weight is 700 pounds, and it comes completely equipped with a No. 221 Wheelco Capacitrol for automatic temperature control, fused switch box and step-down power transformer. The kiln operates on single phase, 110 or 220 volt alternating current and has a current consumption of two kilowatts.

Jeep-Mounted P&H Welder

A new method of jeep-mounting an arc welding generator is revealed by the Harnischfeger Corp., Milwaukee, Wis.

Working with the Milwaukee Willys jeep dealer, Schwartz Motor Co., this new installation was planned to overcome certain objections to direct engine coupled welding generators. Direct drive meant that the Jeep engine had to be run at a high speed, about 2800 r.p.m. for proper welder performance. This was undesirable from the standpoint of operating economy.

P&H Engineers coupled a standard P&H Model WG-200 welding generator to the rear power take-off. Pulleys of the proper ratio permit the Jeep engine to operate at approximately 1500 r.p.m. This speed also enables the welding generator to operate at peak efficiency over its welding range, from minimum to maximum. V-belts are used in the hookup.

The P&H welding generator is mounted for easy removal. Four bolts hold it in place, making it quick to replace the generator with an air compressor as the need requires. Another feature of the rear mounted generator is that the front of the jeep is left free for driver and passenger.

Tail Gate Truck Loader

A handy, low-priced hydraulic tail gate loader for trucks has been introduced to speed up loading and unloading, to minimize freight breakage, and—in many instances—to eliminate a man from the truck crew. The new unit is manufactured by the Day Co., 306 W. 69th St., Chicago 21, Ill., builders of hydraulic lifts.

The lift platform operates over the full distance from ground to truck floor level, raising and lowering loads up to 1,200 pounds. The platform remains level throughout its entire travel are, and swings up to serve as a tail gate when the truck is on the road.

The hydraulic pump is driven from the truck's standard power take-off and is controlled by a convenient lever, or the pump can be operated with a hand lever.

The unit—which fits most standard 1½-ton trucks—is furnished in a complete package, and takes only a few minutes to install. Distribution will be through established truck dealers, according to Day Co. officials.

Day Tail Gate Loader

Special Valves

A series of non-lubricated selector and shut-off valves especially adapted to chemical and process service is announced by the Parker Appliance Co., 17325 Euclid Ave., Cleveland, Ohio.

Handling air, gases or hot liquids up to 400° F., and at non-shock pressures as high as 500 psi., the valves are an adaption of the famous Parker aircraft types originally developed for rigorous military service.

Available in a variety of metals, and designed with non-lubricated rotors of inert graphite, the valves are especially suited to the handling of fluids of varying degrees of corrosiveness.

The shut-off valves are constructed around a cylindrical graphite rotor which has a central passage at right angles to the cylindrical axis. When the passage is lined up with the ports of the valve body, straight-through flow is permitted. Indexed 90°, blank surfaces of the cylinder wall face the ports. The rotor is in two parts, and contains four springs which exert a separating pressure at right angles to the passageway, to provide initial contact of the rotor parts against the valve body.

The selector valves come in a variety of rotor arrangements, permitting the inter-connection of various combinations of as many as five separate lines. An "all-off" position is provided as well.

Rubber-Base Flat Paint

Rubber-base flat wall paint especially designed for schools and institutions has complete washability and eliminates the flame-spread hazard of oil paints, is announced by the Wilbur Williams Co. of Boston, Mass. A free brushing, beautiful texture flat for corridors, cafeterias and other places where walls require frequent washing, this paint is said to meet the special needs of institution maintenance where highly decorative finishes are desired without sacrificing the rugged qualities of strictly utilitarian gloss paints. The paint is available in white and ten colors.

Heavy Duty Jacks

Two new heavy-duty hydraulic jacks, the 30 ton FB-11 and the 50 ton GB-11, have been announced by Blackhawk Manufacturing Co., Milwaukee 1, Wis.

Hydraulic jacks of this capacity ordinarily have but one pump, although some have a separate speed pump to achieve fast load contact. However, these new Blackhawk models combine the load pump and speed pump into one unit. The load pump cuts in automatically when the speed pump has raised the saddle to the load.

According to the manufacturer, the jack user works faster because he does not cope with two separate pumps which would require shifting the jack handle to new positions.

Described in Blackhawk's postwar Jack Catalog J-46, these new models have bases machined from steel blocks 2¾ inches thick, to withstand extreme stress.

Other features include a recessed safety release valve, overall closed construction, ports for gauge or valve installation, pump beam protection, carrying handle, and-on-the-side operation. The FB-11 and GB-11 are one-man operated.

Flexible Tubing

Titeflex, Inc., 626 Frelinghuysen Ave., Newark, N. J., announces a new flexible tubing made with Inconel innercore and braid. The hose may be supplied for temperatures up to 1700°. The innercore of Titeflex Inconel tubing is supplied with wall thicknesses of 0.005 to 0.015 inches. The thicker wall tubing is recommended for the larger sizes where high pressure is the primary requisite, and the thinner wall where the pressure is not over a few hundred pounds per square inch and the weight is critical. Construction of the Titeflex tubing is such as to resist failure caused by excessive vibration.

The hose may be supplied with flat ribbon or round wire braid. The flat braid is recommended for higher pressures and resistance to fatigue, especially to sizes of 1 inch or more.

Titeflex Inconel flexible tubing is recommended for extreme service conditions where monel metal or brass would be affected. Recommended applications include flexible exhaust tubing for automotive power plants, fuel and oil lines for airplanes (Zone D), for food handling, and for chemical equipment where the corrosion resisting properties of Inconel are required.

Hoist Unit Doubles As A Jack

The Coffing Hoist Co., Danville, Ill., has recently introduced a new Hoist-Jack which is a combination hoist and jack designed to move or lift heavy loads in shops, mines and on construction jobs. Complete in only three pieces (stand, hoist and handle), the new unit has a rated capacity of 2,000 pounds, yet weighs only 23 lbs. complete.

This hoist-jack features a hoist whose ratchet-and-pawl construction uses the smallest possible number of working parts; a "safety-load" handle designed to bend at maximum overload before there is any possibility of the chain breaking or of the hooks straightening out; a stroke (which, at the top, brings the handle to a level just even with the top of the hoist frame horizontally) raises or lowers the load, thus requiring very little headroom, and is so compact that when taken apart it can easily be carried in a tool box. By mounting the hoist unit on the stand, a sturdy, powerful jack is obtained.

Coffing Hoist Jack

This new product, designed for all-around shop and field use, saves time and eliminates back-breaking effort on lifting or pulling work. Fully portable and easy to use, its many uses include setting machinery, changing tires on automobiles, trucks and tractors, lifting material, hoisting machinery onto skids for moving, retracking mine cars, as a load binder for various loads and stretching cable on wire.

Weight of the hoist is 13 pounds. Height of the stand is 42 ins. Although the hoist-jack's rated capacity is one ton, it has been factory tested at two tons.

Railroad Disc Brake

The Budd Co., 2535 Hunting Park Ave., Philadelphia 32, Pa., has developed a railroad disc brake which they claim will stop a car running at 60 miles an hour in less than 1000 feet, thereby greatly advancing the safety of the railroad industry. This is said to be a considerable improvement over the clasp type brake now in general use.

Special AC Welder

The Hobart Brothers Co., Troy, Ohio, is announcing a new AC welder especially designed for use with modern "Heliarc" equipment as supplied by Linde Air Products Co., using helium or argon for inert-gas-shielded welding. This equipment is being widely adopted for welding magnesium alloys, aluminum, stainless steels, high carbon and other alloy steels, brass, monel, everdur, and other hard-to-weld metals.

In addition to Hobart's standard AC welder features, this model TIH-300-s embodies high frequency stabilization to insure easy starting and dependable maintenance of the gas-shielded arc with practically no rectification of the A.C. current passing through it. This insures sound welds of clean appearance, and reduces the amount of current drawn from the power lines by the transformer. A window is provided through which the spark gap may be observed, with a door allowing the means of easy adjustment.

Pressing the convenient foot pedal instantly starts the arc through the tungsten electrode, and simultaneously opens the valves permitting the shielding gas and the cooling water to flow through the special torch. Releasing the pedal breaks the arc—but permits gas and water to continue flowing for a predetermined length of time, which is adjustable up to 180 seconds.

Fire Fighting Equipment

The new "Camel," an optional model of the Porto-Pumper fire fighting trailer, is announced by the manufacturer, Porto-Pump, Inc., 227 Iron St., Detroit, Mich.

It is a complete fire department in itself, and provides low-cost protection beyond city hydrant limits.

The "Camel" model carries the same basic equipment as the standard Porto-Pumper: demountable, independent-powered, 85 lb. high-pressure utility Porto-Pump; 50-feet of supply hose, 200 feet of fire hose; 18-foot, 3-section extension ladder; fire axe and hand extinguisher; a selection of nozzles and hydrant adapters—plus the added feature of a 200-gallon tank. It is therefore self-sufficient for water supply.

Conductivity Cell

A micro conductivity cell that operates with minute liquid samples, is offered by Industrial Instruments, Inc., 17 Pollock Ave., Jersey City 5, N. J. Originally designed for the study and checking of human-eye fluids, this Type G-100 conductivity cell operates with only .05 to .10 cc. of solution. The cell constant is 100. Squeezing and releasing the rubber bulb draws the minute liquid sample up into the thick-walled glass tube where it comes in contact with precisely spaced electrodes. Electrical connections are established by clip-on terminals snapped over external bands on the glass tube, which in turn are wired through the glass to the electrodes.

Silver-Brazing Alloy Dispenser

A new dispenser has been designed by All-State Welding Alloys Co., Inc., 96 West Post Rd., White Plains, N. Y., for marketing its No. 100 high strength silver-brazing alloy and No. 111 lowest-melting-point silver-brazing alloy. Each of the alloys is available in both 10-foot and 20-foot lengths, and the amount contained in each factory-sealed package is accurate to 1/10,000 inch. The dispenser is made of aluminum, and its center is recessed to carry the flux jar. The alloy, in 1/16-in. wire form, is coiled around the core and is drawn out through a hole on the edge during use. The dispenser is held in the hand during brazing operations.

Pneumatic Transmitter

A new transmitter, identified as model 42, is announced by The Foxboro Co., Foxboro, Mass., for use in the pneumatic transmission of industrial process measurements such as flow, static or differential pressure, liquid level, temperature or humidity. It is an indicator-type instrument, available with either an eccentric or concentric scale, both being designed for quick and easy reading.

The model 42 transmitter is essentially an improved design of the previous Foxboro transmitter, but the changes are sufficient, both in number and importance, to qualify it as a new instrument. The most important of these is a new transmitting element, which is exactly duplicated in the receiving instrument. Since the transmitting and receiving mechanisms are exactly matched and perfectly linear in calibration, improved accuracy in transmission is the inevitable result. Simplified calibration is another advantage gained in the new design.

Circuit Breaker

An improved line of high-voltage, high-speed, quick clearing (5 cycle), outdoor, floor-mounted oil circuit breakers—Type BZO-160—has been announced by the Boston works of the Allis-Chalmers Manufacturing Co.

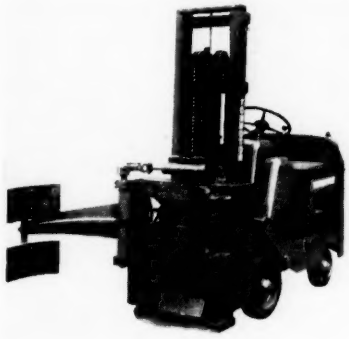
The redesigned units in ratings from 115 Kv to 230 Kv, up to 3,500,000 Kva interrupting capacity, meet the requirements for reliable, high voltage transmission line circuit breaker protection. Important features retained in the Type BZO-160 breaker to insure circuit interruption within 5 cycles, reclosing service within 20 cycles, include the proven, single break, 5 cycle Ruptor arc extinguishing device, and the improved pneumatic operator with self-contained automatic air supply system.

Elimination of external conduit on the side of the improved breaker has resulted in a smooth exterior, while a general decrease in tank diameter from the older types cuts down considerably the amount of oil required.

Other major improvements include a weatherproof mechanism box on top of each tank, readily accessible for adjustment; an improved oil and gas seal for pole unit tanks; provisions for removing either bushings or bushing current transformers without disturbing the other. In addition, complete oil maintenance facilities are afforded on each pole unit tank by means of a fill valve and combination drain and sampling valve, plus a float type oil gauge.

Fork Lift Truck Attachment

A combination roll grip and upender attachment for fork lift trucks, aimed at providing safe handling of heavy cylindrical loads, has been designed for a leading New England paper manufacturer, by engineers of Towmotor



Towmotor Truck Attachment

Corp., 1226 East 152nd St., Cleveland, Ohio, manufacturers of fork lift trucks, accessories and industrial tractors.

The combination attachment was developed in response to a request for a fork lift truck device which would be capable of picking up and stacking 1500-lb. rolls of paper of varying lengths and diameters. An adaptation of the standard Towmotor Upender accessory, which permits handling of heavy cylindrical loads in either horizontal or vertical position, the new attachment features a vise-like pair of curved arms which hold the load firmly and safely at all times.

One arm of the roll grip is stationary, the other, hydraulically operated, closes securely against the roll, holding the load in any position required for traveling or stacking operations. The attachment is mounted on a standard Towmotor Model LT 40 Fork Lift truck having a maximum lifting height of 108 inches and a capacity of 1700 pounds at 20-inch load center.

Oil Line Scraper

A new oil line scraper with excellent resistance to oil, wear, swelling and deterioration has been made by the Pioneer Rubber Co., of San Francisco, Calif. The scraper is made from a series of ten 18½ by 13¼" Hycar American rubber discs mounted on a metal core and is shown being pulled from a crude oil pipeline after completing a 40-mile run with no damaging effects. The scraper is run through the pipe lines when excessive pumping pressures indicate the resistance of accumulated paraffin on the sides of the oil lines.

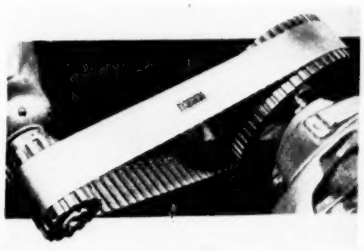
Pioneer Oil Line Scraper

Non-Slip Belt

A belt with rubber teeth that will not slip was announced recently by L. H. Gilmer division of United States Rubber Co.

Perfected after many years of research, the new belt is said to be enormously strong, highly flexible and virtually noiseless in operation. It is designed for use on machinery equipped with special pulleys grooved to fit the teeth.

The belt is reinforced with steel cables embedded in oil-resisting synthetic rubber. The cables reduce stretch almost to zero, eliminating the necessity of take-up devices installed



Slip-proof Belt with Teeth

on many belt drives to remove slack. In operation, the belt makes positive engagement with the pulleys at any speed ranging from a snail's pace to 10,000 feet per minute.

Known as the Gilmer Timing Belt, the new product will be made in various sizes to meet the requirements of machine designers. It is suitable for power transmission and synchronization. Wide usage is expected in the automotive and aviation fields and on machine tools, business machines and industrial equipment.

Dew Point Recorders

Dew point recorders and recording controllers, said to be the first simple, continuous dew point measuring instruments available for industrial use, are the newest additions to the line of industrial instruments offered by the Foxboro Co., Foxboro, Mass. They are the result of several years of research and development and extensive field-test installations. A considerable number are already in use in such varied applications as air conditioning, blast furnace operation, a weather station, gas distribution, and storage container research work. Some of the other applications in which dew point measurement and recording is important are food processing plants, warehousing, storage rooms, refrigeration, foundry cupolas, dryers, and air fields.

The unique feature of the equipment is Foxboro's patented measuring element, the Dewcel. It has the general appearance of a perforated metal cylinder about 9 inches long and 2 inches in diameter.

Trade Literature

Clark Material Handling News

The fork-lift truck is the subject of an issue of Material Handling News, recently issued by Tructractor Division of Clark Equipment Co., Battle Creek, Mich.

Fully described with action photographs are the following attachments, easily interchangeable with the standard forks:

A scoop for handling bulk material such as sand, salt, etc.

A ram for handling coiled material—wire, rolled strip, etc.

Pul-Pac, a push-pull device for handling unit loads without pallets.

Hi-Lo-Stack, a special low-clearance high-lift device: 83-inch overall height, 130-inch maximum lift, and 63-inch "free" lift.

Fork extensions, easily attachable, for handling unusually large units.

Cotton boom with forks to grip a bale; 160-inch lift for high stacking.

Revolving head, to lift, carry and dump a container.

Allis-Chalmers Engineering Data

A 144-page, indexed catalog for "pre-engineered" stock Texrope drives, which simplifies drive selection so persons untrained in V-belt engineering can readily specify proper drives, has been announced by the Allis-Chalmers Manufacturing Co., Milwaukee.

In the process of development by Allis-Chalmers Texrope engineers for more than a year, the catalog is said to represent one of the most outstanding compilations of engineering data ever assembled for the V-belt industry.

Nearly two-thirds of the new book is devoted exclusively to pre-engineered stock Texrope drives for all applications from one to 150 horsepower. More than 22,000 stock drives are listed in this section. Drives for all horsepowers, motor speeds, ratios and driven speeds have been accurately pre-engineered and are systematically listed according to horsepowers.

Recently announced pitch diameter sizes of B and C Magic-Grip sheaves are used in many of these drives and have greatly increased stock drive selection possibilities.

Texrope pre-engineering is the calculation and listing of a stock Texrope drive to meet a certain set of conditions, including horsepower, motor speed, ratio and overload factor. Wherever the same set of conditions exist, the same drive can be used with full assurance that it is properly suited as it would be if individually engineered for each separate application.

Fairbanks-Morse Motor

Fairbanks-Morse and Co., Fairbanks Morse Bldg., Chicago 5, Ill., have recently published their bulletin, #2700, which deals with their Axial Air Gap motor. The company states that there has been a need for such a motor for a number of years and that theirs, now proven and in use all over the country, satisfies this need.

One section of the bulletin explains the versatility in application of the motor; showing how it can be mounted vertically, horizontally, or pivot based. Other sections are devoted to features of construction, uses to which the motor can be put, and other specifications. The bulletin is liberally illustrated. Copies may be obtained from the manufacturer.

Self-Priming Pump

An automatic, self-priming pump equipped with a new type automatic spring valve which is said to give faster, smoother transition from priming or vacuum pumping to straight centrifugal action, is described in a new eight-page illustrated bulletin (08B6319B) released by Allis-Chalmers Manufacturing Co., Milwaukee.

According to the bulletin, the pump's portability, rapid installation, quick priming features, and non-clog design of its open impeller design, makes it a valuable tool in almost every industry. It is adaptable to any drive and is available in five sizes to cover ranges and conditions diagramed in the bulletin.

The pump's simple design, which is graphically portrayed, makes for easy maintenance of its vital parts.

Hewitt-Robins Air Drill Hose

Hewitt Rubber Division, Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo, N. Y., has released a descriptive folder on its Monarch and Ajax brands of air drill hose designed for heavy-duty service in mines and quarries where resistance to hot oils and abrasion is especially important.

The folder tells of the many uses for the two brands of hose and describes their construction.

N. & W. Magazine Honored

The American Railway Magazine Editors' Association has named the Norfolk and Western Magazine the best railroad publication in America. The announcement was made at a San Francisco press club banquet where the group concluded its "convention on wheels."

N. & W. Editor R. R. Horner and Managing Editor Harold Freed were presented with a plaque attesting their magazine's excellence at the dinner which concluded the group's meeting which began last week aboard a coast train from Chicago.

Materials Handling Catalog

Lewis-Shepard Products, Inc., 290 Walnut St., Watertown 72, Mass., announces its new Materia's Handling Catalog, #23. Printed in three colors, it contains 86 pages and the cover has a special filing tab for quick visual reference.

The company's power division and hand operated division are subdivided into a total of five sections representing the following classifications of materials handling equipment: The power fork truck division; the power jacklift division—recently introduced, this truck is of the "walkie" industrial type 100% electrically controlled which can be operated with the handle vertical or in any other position; the stacker and crane division; the hand operated lift truck division, and the floor truck, skid platform and storage rack division, including a large selection of specially built equipment for unusual jobs.

Metal Industries Equipment

Equipment for the metal industries is described in a bulletin (2586773) issued by Allis-Chalmers, Milwaukee 1, Wisc., suppliers of one of the most diversified lines to this industry.

Reviewed in the bulletin are such items as high frequency converters for induction heating and melting, arc furnace transformers and control, welding machinery, heavy-duty radiography equipment, and precision castings. It reveals for example, that more arc furnace transformers have been built and installed by Allis-Chalmers than by any other manufacturer.

Plastic-Coated Drill Pipe

The story of how the Spang-Chalfant Division of The National Supply Co., Grant-Sylvis Bldg., Pittsburgh, Pa., developed its plastic-coated drill pipe for drilling oil wells in highly corrosive fields is told in a 22-page booklet recently issued by the company. The thermo-setting plastic, which is applied to the inside of the pipe, resists the corrosive action of the acids, alkalies and salt picked up by the drilling fluids and thus prevents fatigue cracks that may result in pipe failure and a costly fishing job. The pipe has proved itself in extensive field tests and in drilling of wells since it first became available a few months ago.

Following the success of the plastic-coated pipe for drilling oil wells, Spang-Chalfant has developed a similar coating for tubing used in producing wells, and is continuing its research to adapt the coating to pipe used in many other industries, including home and industrial construction.

The bulletin describes, among other things, the problem of corrosion fatigue, its economic considerations, history of the development of the new pipe, reasons for the selection of the thermo-setting plastic, results of the field tests and the laboratory test program.

Surface Combustion Corp. Booklet

A booklet entitled, "Heat for Metals," has been published by Surface Combustion Corp., Toledo, Ohio, which is descriptive of the company's broad activities in metallurgical research, and the designing and manufacturing of heating equipment for the metal producing and working industries.

The booklet consists of thirty-two pages, attractively printed in red and black. Subjects include the latest developments in heating equipment for steel mills, the history of the development of gas chemistry and heat treatment; prepared gas atmospheres and heating equipment applications to processing such as gas carburizing, carbon restoration, atmosphere hardening, gas normalizing and annealing, gas cyaniding, gas quenching, gas malleableizing, and atmosphere heating for forging. In addition, standard industrial furnaces, and burner systems and equipment are described.

"Heat for Metals" booklet is a ready reference on modern heat treating methods and equipment.

Cooper Sweetening Process

The Air Reduction Co., 60 East 42nd St., New York 17, N. Y., (dept. 1610), has announced the publication of a folder, complete with diagrams, which fully explains the use and application of the Air-Hoover Cooper Sweetening Process. This process according to the company, is the original method of sweetening malodorous oils by bringing them in contact with copper chloride.

Allis Built-In Motors

Louis Allis Co., Milwaukee 7, Wis., Bulletin 516-D, describes the line of type "CT" Rolled Shell, Shaftless Squirrel Cage Induction Motors for built-in drives with details of electrical and mechanical features, mounting, ventilation and applications.

Hardinge Sand Filter

Automatic backwash rapid sand filter, manufactured by Hardinge Co., Inc., York, Pa., is completely described in bulletin 46 which may be obtained from the factory in York, or from any of the Hardinge branch offices. This filter is new in principle, employing a traveling, automatic backwash mechanism which cleans the filter bed without interruption to the filtering process. The filter is recommended for purifying industrial water supplies; sewage treatment; trade waste recovery; municipal water treatment, and for raw water purification, white water filtration and waste recovery in paper mills. No shut-down or change over is necessary while cleaning is in progress.

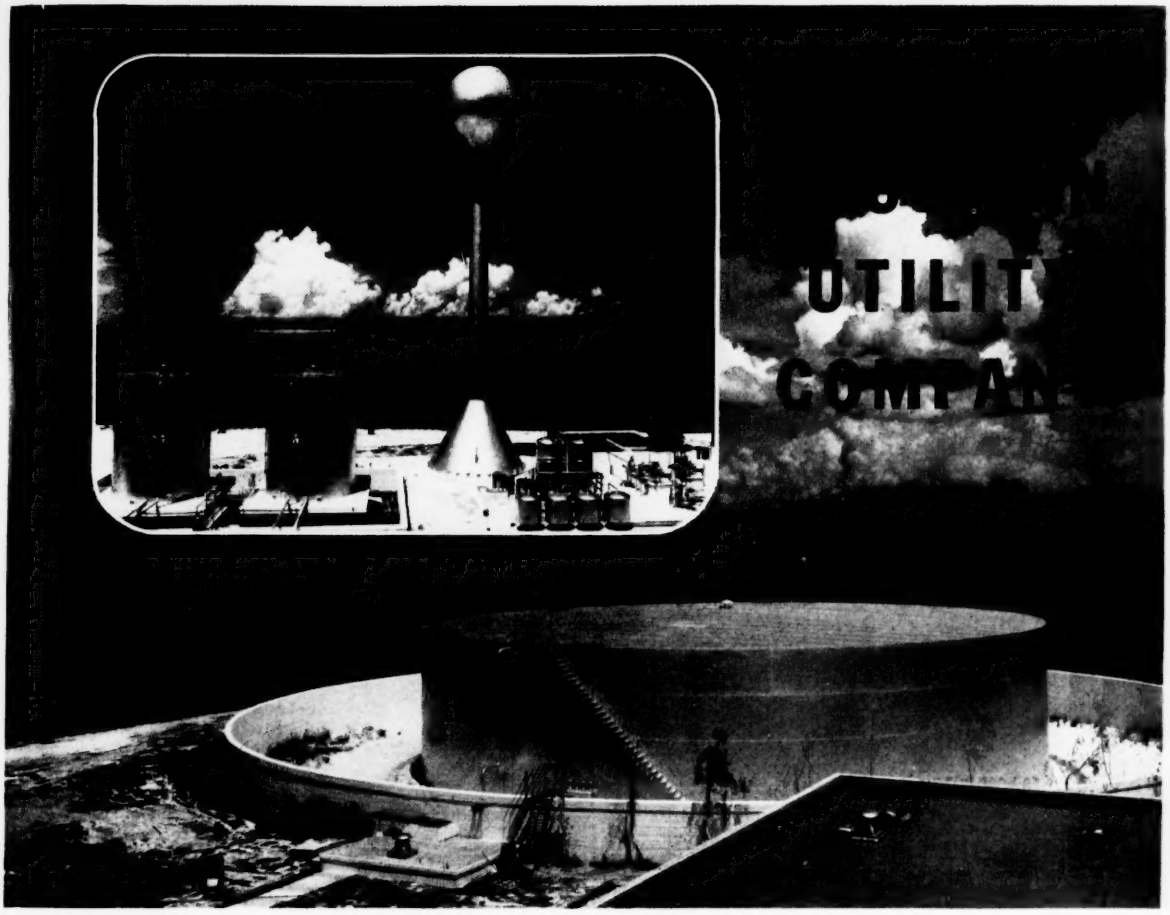
Bearing Catalog

Jack & Heintz Bearing Division, Cleveland, Ohio, has recently published a new ball bearing catalog (No. 2001) which includes a pictorial section devoted to the J & H precision ball bearing production methods. Millimeter equivalents, bearing specifications and bearing equivalents are also included as well as a comprehensive chart explaining the standard AFBMA bearing numbering code.

Plating Equipment

Metalplate Co., 116 South 20th St., Birmingham, Ala., announces installation of additional production plating equipment, and enlargement of its anodizing and Alumiliting department. As licensees of Aluminum Co. of America, Metalplate offers to fabricators of aluminum products a complete finishing service on this metal in accordance with standard specifications. Practically all architectural aluminum is now being specified "Alumilite," and, as a consequence, this metal as handrails, spandrels, and grills retains its clear silvery appearance through the years.

As a service to manufacturers, Metalplate offers production service on parts to be chromium plated, cadmium, nickel, copper and brass plated. Other specific finishes are available to meet customer's requirements and specifications.



. . . uses Horton welded fuel oil tanks and an elevated Watersphere

The two views shown above were made at a new 18,000-kw steam electric-generating station in Florida. This plant was built primarily to provide additional generating capacity to help supply a rapidly-growing domestic, farm and industrial load.

The large view shows a 55,000-bbl. oil tank 120 ft. in diam. by 28 ft. Fuel oil is delivered to the station by barge and is pumped into this storage tank. Two motor-driven rotary pumps deliver the oil from this large tank into the two 60,000-gal. service tanks shown at the left in the small view above. Oil is pumped into one of the service tanks while the contents of the other is being used. This permits fuel consumption records to be based on measurements in the service tanks which, because of smaller volume per foot of height, are more accurate than measurements in the large storage tank. Both the storage and the service fuel tanks are equipped with steam coils.

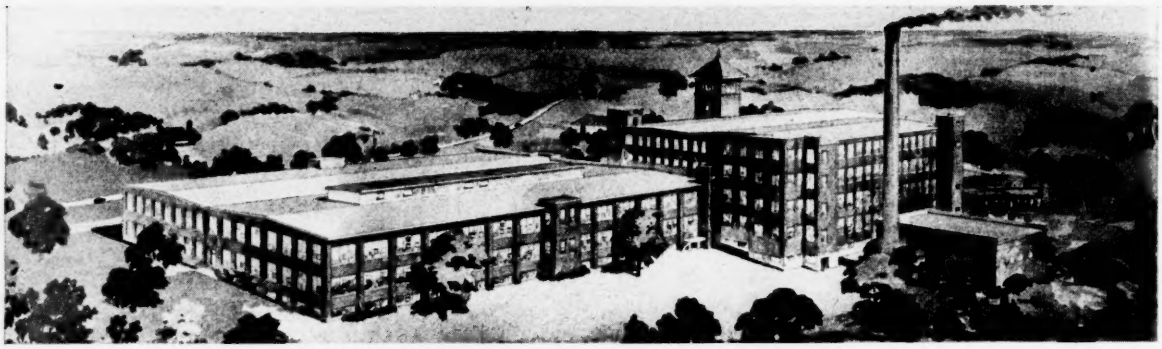
The 50,000-gal. Horton elevated Watersphere shown in the small view is used to provide water under gravity pressure for station service and boiler makeup. The supply of water for these purposes is taken from wells and softened before being pumped into the tank. The Watersphere, 100 ft. from grade to bottom, lends a striking appearance to this modern, well planned power station.

Our plants are strategically located to work closely with Southern industries in designing, fabricating and erecting many types of steel plate structures. Let us help you on your next steel plate requirements. Write our nearest office for quotations.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3 .....2145 Healey Building	Chicago 4 .....2106 McCormick Building
Birmingham 1 .....1530 North Fiftieth Street	San Francisco 11 .....1240-22 Battery Street Building
Houston 2 .....2114 National Standard Building	Philadelphia 3 .....1619—1700 Walnut Street Building
Tulsa 3 .....1611 Hunt Building	Los Angeles 14 .....1417 Wm. Fox Building
New York 6 .....3313—165 Broadway Building	Havana .....402 Abreu Building
Cleveland 15 .....2216 Guildhall Building	Detroit 26 .....1510 Lafayette Building

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA



Above—$1,500,000 addition to the Seneca division of Utica and Mohawk Mills recently completed by Daniel Construction Co., of Greenville, S. C. J. E. Sirrine & Co., also of Greenville, were the architects and engineers for the 5-story project which more than doubles the spinning and weaving capacity.

Southern Construction Value Up In First Eleven 1947 Months

(*Continued from page* 37)

North Carolina; $21,772,000 for Mississippi and $20,084,000 for Kentucky.

Public building in the elapsed months of this year amounts to $296,625,000, with $173,715,000 for schools. The public building total is well above the $242,554,000 for the comparable period of last year and the $222,192,000 for the first eleven months of 1945.

Heavy engineering construction so far this year is valued at $254,901,000. This is a drop from the $263,557,000 for the first eleven months of last year but a substantial increase over the $169,654,000 for the similar months of 1945. The current eleven-month total embraces $161,192,000 for dams, drainage, earthwork and airports and $76,843,000 for sewer and water work.

While southern construction figures were indicating a peak of valuation for the first eleven months of the current year, government estimates placed next year's total for the country at $15,200,000,000. A twenty per cent increase over the $12,665,000,000 expected by the end of this year, the prediction includes $11,375,000,000 for privately financed work and $3,825,000,000 for publicly financed projects.

Privately financed residential building is seen as the largest single component of next year's activity. Such dwelling construction will be valued at $6,000,000,000, an increase of twenty-five per cent over the $4,800,000,000 now regarded as the ultimate figure at the end of 1947. The number of dwelling units seen in the 1948 program is placed at 950,000.

Expenditures for private non-residential building are expected to rise slightly next year. The valuation is set at $3,250,000,000, as compared with the $3,165,000,000 for 1947. Probable increases in commercial and miscellaneous building may be offset by a decrease in industrial building, according to the forecast which was made jointly by the Commerce and Labor departments.

Greatest boost in the privately financed field is expected to be the larger expenditures for public utility expansion. These will probably total $1,625,000,000, compared with the current year's $1,315,000,000. Telephone, light and power and gas companies are expected to participate in the expansion activities.

Publicly financed construction's rise is expected to stem from more activity in highway construction, sewer and water work and in conservation and development. Non-residential public construction will reflect large public hospital and educational programs which may reach $850,000,000 to overshadow this year's $500,000,000.

Highway construction throughout the country is expected to advance to $1,500,000,000, an increase of twenty-six per cent over this year. Sewer and water construction will total $375,000,000, says the government estimate, and conservation and development work, $475,000,000, each registering a substantial gain.

Moderate rises are seen in construction costs in 1948, as compared with current prices, increases will probably be less than the spread between 1946 and 1947 prices.

A private agency—the Producers Council formed by building material and equipment manufacturers—says that the 1948 supply situation will vary from "comfortable" to "fairly adequate" with the possible exception of steel and steel products, one of the inadequacies which at present beset buildings.

The coming year will see a further improvement in the supply of the vast majority of materials. Dealer's inventories will also increase, in the opinion of the Producers unit, which qualified its forecast with the observation that the present Administration is seeking to restore controls and that such action "could seriously interfere with the progressive re-establishment of orderly markets."

"The degree of materials shortage next year also will partly depend upon ultimate decisions in respect to foreign aid," says David S. Miller, head of the Producers' agency. "So far as building materials are concerned, he states, "the indirect impact of a foreign aid program, accompanied by steel and freight car shortages, is likely to be more important than direct demands for building products.

"The physical volume of total new construction expected to be put in place during 1948 is ten to twenty per cent below the 1941 volume. During the summer months of 1947, the production of most building materials was at or above the average rate of 1941 output. If this rate is maintained the difference between physical construction volume and materials production should provide an ample margin for an increase in inventories plus, in some cases, more deliveries to foreign countries. For there was no semblance of materials shortages in 1941.

"Composition of construction in 1948 will be different from that in 1941, with resulting changes in materials requirements; less military and other public construction; more private and particularly, residential building.

"A few groups of materials in the late summer of 1947 had not yet come up to 1941 production rates. Hardwood flooring, certain types of millwork, structural steel, concrete reinforcing bars, nails, cast iron radiation, and rigid steel conduit and fittings are in this group. In the case of a few other products, such as plywood and gypsum board, production has reached 1941 levels but construction as well as non-construction uses have increased so rapidly that output at the 1941 rate is inadequate. Freight car shortages during 1946 and 1947 have hampered the reorganization of the distribution system. This difficulty did not exist in 1941.

"For 1948," the Producers Council anticipates "a smaller list of short products. Structural steel, reinforcing bars, sheet steel for warm air furnaces, duct work, downspouts and gutters and nails will remain hard to get. Cast iron soil pipe may still be tight during the first few months of next year. The freight car shortage will not be fully overcome during 1948, which means continuation of distribution problems even where output is adequate.

"Lumber including millwork and hardwood flooring promises to be in sufficient supply next year. New or expanded plants

(*Continued on page* 58)

LONG DISTANCE CALLS ARE MOVING FASTER

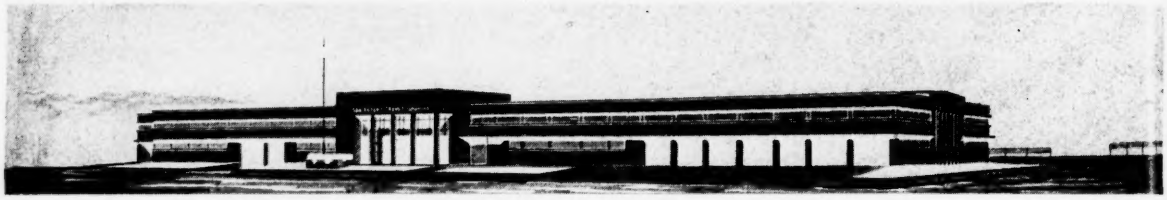
We're adding new circuits every day and service is improving.

Nine out of ten out-of-town calls go through while you hold the line. We can handle more calls, by more people, more of the time.

That's real progress but we're not boasting yet. Too many folks are still waiting for telephones. Some calls are still delayed.

We can tell you, however, that we're on our way to that happy day when everyone will get all the telephone service he wants . . . with speed, accuracy and of course with courtesy.

BELL TELEPHONE SYSTEM



Above—Robert E. McKee, of Dallas, is the contractor for the $1,000,000 shop and garage facilities being erected at San Antonio, Texas, by the San Antonio Transit Co. Atlee B. and Robert M. Ayres are the architects; Allen & Kelly, of Indianapolis, cooperating on the plans and specifications. The shops building will be 156 by 424 feet. Open bus parking area will cover approximately 28,979 square yards of concrete paved area six inches thick on a gravel base.

Southern Construction Value Up in First Eleven 1947 Months

(*Continued from page* 56)

for gypsum board, plywood and other comparatively new products will come into operation during 1948 and help boost output. Inventories will improve though they will probably not be up to normal standards."

The Building Products Institute, another organization of building products manufacturers, estimates that about 200,000 additional workers will be needed in the construction industry next year to take care of the anticipated $1,500,000,000 increase in building.

Douglas Whitlock, chairman of the Institute, sees no difficulty in obtaining the needed workers "in view of the progress of the apprentice training program." The increase in the amount of construction will not require a corresponding increase in the labor forces, he states, first, because there have been encouraging signs of increased worker productivity and secondly, because the highway and heavy engineering work, where the rises are expected, do not need the skills ordinarily used in residential and other building.

A steel industry spokesman revealed some interesting facts on output last month when he pointed out that total shipments of finished products for his industry this year will be 62,344,314 tons, as compared with the 48,775,532 tons of last year and that practically the same percentage was shipped to construction, which means that this year the tonnage was 11,860,024 as compared with the 9,547,922 of 1946.

Plans of his industry to expand involve more than one billion dollars, or a sum equal to the total net earnings of the entire industry for the five year period 1942 to 1946. The new facilities to correct inadequacies in supply include coal washing and coke oven plants, blast furnaces, hot and cold rolled sheet mills, rod mills, wire drawing machines and pipe mills.

The spokesman was C. H. H. Weikel, manager of commercial research for Bethlehem Steel Co. He emphasized that steel in its many forms is a product of numerous uses, that the needs of the consuming industries must be carefully calculated and that mills for making structural material for buildings are useless in making fence wire for farmers. "The industry," he asserted, "cannot add two million, ten million, or any other tonnage figure to its existing capacity by simply waving a wand."

Three interesting points were emphasized by an Alabama engineering concern who expresses the opinion that there is a possibility for tremendous expansion in the construction field, if building codes are made uniform and modernized; if the individual in construction can be made to realize the wisdom in taking pride in his individual work and if labor will realize that high wages can only be maintained by high efficiency and output on the part of the individual.

Some recession is needed in the current highly inflated situation says another construction company official, who views the construction picture as "not much different from the general economic picture." Construction demands of both public and private origin are so great, however, that he sees little indication of such a decline as the present volume is sufficient to span any five year period, unless the business and political situation of the world is affected by factors our statesmen are unable to control.

The position of the Federal Works Agency is that public construction should be planned for expansion in times of adversity and decreased during periods of prosperity. Maj. Gen. Philip B. Fleming, the administrator, describes the essentials of sound public construction in three categories: To serve human needs; strategic in its timing, and integrated with local and regional programs, as well as financial soundness.

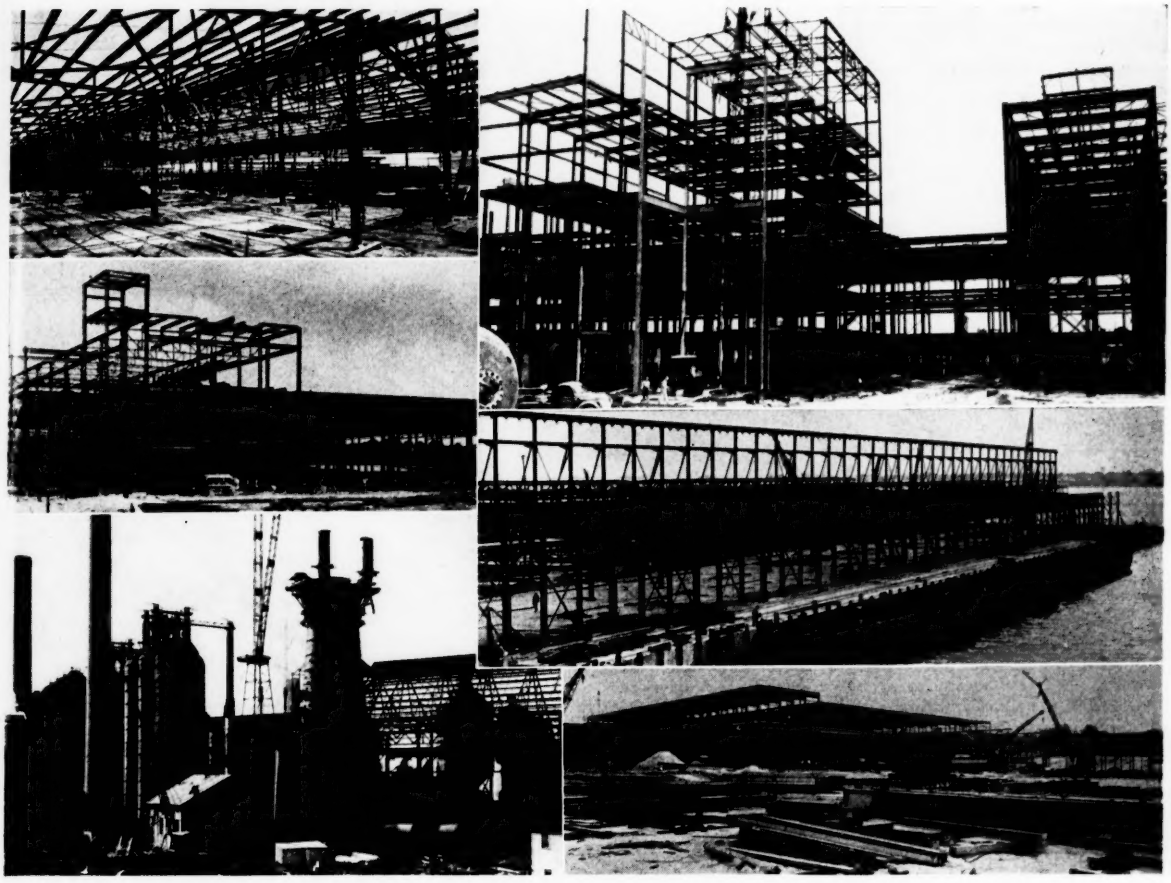
Industrial Contracts

(Including Private Utilities)

	November, 1947		Contracts Awarded First Eleven Months 1947
	Contracts Awarded	Contracts to be Awarded	
Alabama	$ 3,092,000	$ 5,470,000	$ 9,874,000
Arkansas	.....	4,060,000	2,105,000
Dist. of Col.	.....	.....	25,000
Florida	1,242,000	4,320,000	9,810,000
Georgia	750,000	6,400,000	58,558,000
Kentucky	.....	1,725,000	2,400,000
Louisiana	240,000	4,220,000	40,261,000
Maryland	937,000	2,429,000	17,199,000
Mississippi	.....	3,850,000	3,787,000
Missouri	1,668,000	885,000	12,407,000
N. Carolina	444,000	6,091,000	10,613,000
Oklahoma	.....	4,350,000	2,918,000
S. Carolina	295,000	5,350,000	13,033,000
Tennessee	200,000	1,000,000	4,989,000
Texas	5,668,000	27,259,000	147,334,000
Virginia	453,000	35,202,000	15,789,000
W. Virginia	.....	634,000	14,380,000
TOTAL	$14,989,000	$113,245,000	$365,482,000

Below—One of the first apparel manufacturing plants erected in the wholesale district of Dallas is the $500,000 plant of the Lorch Manufacturing Co. Containing 60,000 square feet of space, the building was designed by Thomas, Jameson & Merrill. J. E. Morgan & Sons are the contractors.

IN THE CLASS OF '47---at Virginia Bridge



Veneer Mill—Brunswick, Ga. Tidewater Plywood Corporation Silk Mill—Winston-Salem, N. C. Duplan Corporation
Addition to Steel Rolling Mill Paper Mill—Macon, Ga. Macon Kraft Company N. & W. Ry. Warehouse, Pier N—
Lambert Point, Va. Buick-Olds-Pontiac Assembly Plant—Doraville, Ga. General Motors Corporation

The important class of construction for which the fabricated steelwork is being supplied from our three plants this year, means greater production and better distribution in many essential industries—Steel, Power, Transportation, Mining, Paper, Textile, Chemical, Shipping, Storage and others. It is a great privilege to have a part in such timely construction, and we welcome every opportunity to serve its needs.

Many important units of these great industries have found in Virginia Bridge steel service the versatile experience and resources necessary to meet their exacting structural requirements.

STEEL STRUCTURES--All Types

Welded or riveted, large or small,
if it's structural steel we welcome
your inquiries

VIRGINIA BRIDGE COMPANY · USS STEEL · UNITED STATES STEEL

Virginia Bridge Company

Roanoke Birmingham Memphis New York Atlanta Dallas

UNITED STATES STEEL

The Southwest

(*Continued from page* 10)

a southwest location. Clarence Burch is chairman of the board.

No sooner had the news of the board's project spread when American Window Glass Co. announced a $1,000,000 expansion program for putting its Okmulgee plant into operation. Work will begin immediately and when completed, the plant should employ about 500 persons. Initial operations will consist of three Fourcault sheet glass drawing machines. Others will be added as construction permits. H. Dean Menoher, superintendent of the Jeanette plant, will be in Okmulgee supervising alterations at the old plant.

Fertilizer Plant Announced

At Tulsa, the Missouri Chemical Co. has announced location there of a large commercial fertilizer plant which will be constructed in conjunction with the Ozark Chemical Division of Ozark-Mahoning Co., located northeast of the Mid-Continent refinery in West Tulsa. The new plant, with a 100,000-ton annual capacity, will have an output of at least 50,000 tons the first year of operation. Ozark-Mahoning Company will construct one new building and the other will be built by Oklahoma Chemical Co., which will be owned by Missouri Chemical officials.

W. M. Hawk, president of Hawk Dairies, Tulsa, has announced construction of a new plant and processing equipment costing about $600,000. The building will have two floors and a basement and when equipped, according to Hawk, the firm will own one of the most modern and complete dairy products plants in the Southwest.

Elsewhere in the state, B. F. Goodrich Co. at Miami has revealed plans for enlarging its plant at a cost estimated about $800,000. And at Duncan, Sunray Oil Company is believed to have completed terms for purchasing at $5,000,000 a War Assets Administration refinery. A new hardwood planning mill, which will use hardwoods from Missouri, Arkansas and Oklahoma, will be established at Broken Arrow.

Oklahoma City Expansion Big

Expansion in Oklahoma City industries and businesses will amount to more than $15,000,000 when completed this year. Most of the jobs include warehouses, new office space and small plants. In operation already is the $150,000 Fred Jones Company which will rebuild automobile engines. G. A. Nichols, Inc., will build an eight-floor office building.

There have been at least seventy new businesses established in Oklahoma City so far this year including sixteen new manufacturers, ten oil and allied industries, two farm machinery manufacturers, eight distributors, four insurance and credit businesses, three photo and recording services, a like number of theaters and two radio stations. The Safeway Company has purchased fifty acres in the Santa Fe Industrial District where they plan to construct several buildings to service the Oklahoma division.

A brighter picture appeared in Texas on department store sales. After a downward trend for three consecutive months, the dollar volume of store sales turned upward and in the four weeks ended November 8, compared with a similar period last year, the sales in Houston were 25 per cent plus, 14 per cent higher in Fort Worth, 12 per cent over last year's at San Antonio, and 5 per cent better in Dallas. Retail furniture stores exhibited an even stronger upward trend.

Drought Retards Crop Growth

Drought conditions over the Southwest retarded growth and development of field crops during late fall and seriously delayed the seeding of winter wheat. The West Texas and Panhandle plains can hope for little more than the yield from grain sown during the harvest period. Only a few sections have reported rain.

The estimated year's supply of cotton was at its lowest in October since 1924 with indications this year for a yield of only 12,589,000 bales, excluding exports during September. For Texas, the forecast was for a crop of 3,150,000 bales, slightly larger than average production considering an average yield of 183 pounds per acre. Gins in Texas were operating at capacity. Louisiana was falling below its ten-year average with 500,000 bales predicted and the Oklahoma crop was likewise down at 275,000 bales. Texas noted its fall in corn yield with 50,193,000 bushels or 9 per cent under last year's production.

Estimated farm cash income for Texas reached $221,029,000 in September or a total for the year of $1,138,384,000, just 43 per cent above the total for last year. The Trans-Pecos area and the Lower Rio Grande Valley were the only areas failing to report income gains, according to the University of Texas Bureau of Business Research.

This farm income, incidentally, gave heavy support to the economic situation with crude runs to stills, electric power consumption, freight-carloading and employment registering advances. And farm prices showed no chance of dropping in price with a foreign demand as great if not greater than a domestic demand.

Employment Requirements Strong

Estimates of employment prospects in the major Texas labor market areas indicate strong demands for additional personnel during the winter season. Employment in manufacturing establishments over the state has maintained a postwar peak of 341,500 persons which reflects a general expansion of activity in non-durable and durable goods plants.

Significant increases in employment have occurred in manufacturers of apparel, food and kindred products, chemicals, transportation equipment (mainly aircraft), and lumber and timber with only minor increases noted in iron and steel plants and machinery manufacturers. Actually, the present labor market in many sections of the Southwest appears tighter than at any other time since the end of the war, but unskilled workers are comparatively plentiful in Texas as a whole.

Much interest in Texas industry is being focused on the results of an experiment by a cotton oil mill plant at Clarksville. Investigation will be made first of a plant near Shreveport which is processing okra seed for production of lacquers and paint oils. The Clarksville mill likely will try the processing in the North Texas area if sufficient acreage can be obtained and the investigation of the other plant leaves encouragement.

Archer-Daniels-Midland Co., Minneapolis, has revealed plans for construction of a $1,000,000 flax mill in Karnes County for processing the fiber, seed and straw into cigarette paper and linseed oil. The firm refines vegetable oil at its Minneapolis plant.

An estimated 300 persons expected to be employed by Moore Business Forms, Inc., at its new Southern division plant recently opened at Wichita Falls. The manufacturers of all types of business forms will serve the Southwest and Southern states from the North Texas plant. W. N. McLeod is president and E. G. Baker, chairman of the board.

Nation's Boot Capital Prospect

At an opening of the largest boot concern yet located in Wichita Falls, the Whit-Bern Boot Co., a Dallas banker, R. L. Thornton, told the dinner crowd that the town has an opportunity of becoming the boot-manufacturing capital of the nation. Mr. Thornton said that during the next decade industry will be on the move, chiefly in a Southwest direction. He commended the Wichita Falls Industrial Foundation for its work in securing the location there of the boot plant. Bernard Bernbaum is president; Harry Whitman, vice-president and secretary; Wallace Fraser, vice-president, and Donald B. Fielding, treasurer.

Two North Texas dams moved toward early construction starts in November with a ground breaking for the $12,305,300 Grapevine reservoir twenty-two miles northwest of Dallas and a condemnation suit on the first 890 acres needed for initial work on the $12,000,000 Levon Reservoir in southern Collin County. The United States Corps of Engineers office at Galveston will supervise the jobs. Fullee Construction Company, Shreveport, made a low bid of $186,130 for the first job at the Levon site. Dallas' interest in the Grapevine dam is attracted by the assurance of 135,000 acre-feet of water storage. The dam, also a flood control measure for the Trinity River, will be two miles wide, eleven miles long and inundate an area of 12,740 acres.

Color Plays Important Role

(*Continued from page 43*)

color harmony. The glare from bright sunlight is less noticeable if the walls are painted a light color, such as ivory, for the same reason that automobile headlights when met in the daytime cause no glare, whereas at night, with a dark background, an undimmed headlight will blind an approaching driver.

Window frames themselves and the dividing bars across the sash may be painted in a darker shade, usually the same color as used for the dado (lower part of the wall).

A light shade of green or blue on the ceiling is also helpful in reducing glare caused by direct sunlight in early mornings and late afternoons. It also adds an effect of coolness to the room. In certain type factories where a skylight is overhead, a colored ceiling may be used with good effect because maximum light reflection from the ceiling is not necessary.

Authorities on illumination recommend that the brightness of the surroundings should be approximately the same as the brightness of the work itself. It has been found that if the brightness of the surroundings is five times greater than that of the object under scrutiny, the efficiency of cision drops to 44 per cent of normal. Likewise, if the brightness of the task is five times greater than that of the surroundings, the efficiency falls to 77 per cent.

Machinery Enamels Effective

The use of machinery enamels of higher brightness is an effective means of keeping the brightness of the surroundings at a level comparable with that of the work being performed. In some operations, the task is performed to best advantage when the tool or piece of work is silhouetted against a light background such as ivory. Most often silhouette colors are lighter colors of the machine enamel.

There are cases, as explained earlier, where colored ceilings can be used to advantage in plants, but white, due to its higher light reflection value is most generally used. Also from the standpoint of pleasing color arrangement, white or near white ceilings give excellent results with all the color harmonies.

Color selection for walls is important. Experience shows that more people prefer green than any other color with the possible exception of ivory. Therefore, where substantial numbers of people are involved, green is usually a safe color to select.

3-Way Color System

Actually there are three basic systems of color usage in industrial plants. The most important is the

(*Continued on page 62*)

Color Plays Important Role

(*Continued from page* 61)

conventional wall and dado system. In this type of color usage, the colors are gradually increased in brightness from floor to ceiling. Thus the floor may be a neutral gray, the dado a dark green, the upper wall a light green and the ceiling white.

Just the opposite is the lifted ceiling or "out-of-door" arrangement where the ceiling is light blue or green, the walls white or ivory, without dado; and the color contrast obtained by using a darker value of the ceiling color on machinery and equipment. This arrangement is greatly enhanced if a pleasing color contrast is intorduced on accessories as for example, muslin curtains where dark blue is used on machines. On a recent job this combination produced a striking effect in a textile department where curtains were regularly used to reduce excessive sunlight.

The third system of color usage may be referred to as the "color band" method. This system is particularly adapted to high ceilings with flat and simple ceiling construction. With this arrangement, the ceiling may be white or ivory; a light tint may be used on the wall above the top of the windows and either the same tint or a dado enamel used below the windows. The pilaster between the windows would be painted white or ivory. The white pilasters, together with the window openings themselves, which are also light, form a continuous band all the way around the room. Across the top of the white pilasters, a band of dado color, six to eight inches wide, adds distinction to the effect. If the wall below the windows is painted the same light tint as used above the windows, a base of dado color 8 to 10 inches high may be painted around the room.

Color says, "Caution"—"Danger"

Along with wall, ceiling, machine and silhouette colors, the harmonies include accent colors. The purpose of the accent color is two-fold: To indicate points of danger and operating levers and as a purely decorative feature to add interest to a small area with bright color.

Accent colors should be used sparingly. A danger color should be used only at points of extreme hazard; otherwise the significance of the signal is lost. Yellow is used as a caution signal and to mark hazards. Green is used to designate safety. In the Sherwin-Williams color harmonies accent colors have been worked out along the principles of good color selection. Thus, on a silver gray machine, red is the recommended accent color while with beige and brown we have suggested orange and with dark blue, yellow is the accent color.

Check Colors Under Plant Lights

In working with color harmony finishes it is always well to make the final choice under the actual light which will be used in the plant. This is graphically illustrated by the effect of fluorescent lighting on blue and green and ivory and gray. These four shades show little change under this lighting. However, yellow and peach may be considerably altered by fluorescent light. The effect is to give a greenish cast to the yellow and a grayish cast to the peach. Brown loses considerable warmth of tone under fluorescent light and beige is subject to the same change.

Another caution to be taken is in large plants where it is not always practical to select a single color harmony which will meet all conditions throughout the plant. On the other hand, abrupt change in color from one department to another is equally objectionable. Related color harmonies for adjoining rooms have provided an excellent solution to this problem.

Five Basic Color Harmonies

It would be impossible to explain in this article all 17 color harmonies which in turn combine into 54 different arrangements. But the most important and generally useful of the harmonies are the five basic

combinations using light and dark shades of a single color.

Harmony No. 1

Wall—	Turquoise
Dado—	Medium Turquoise
Machine—	Silver Gray

Harmony No. 3

Wall—	Peach
Dado—	Beige
Machine—	Medium Turquoise

Harmony No. 5

Wall—	Avalon Blue
Dado—	Medium Blue
Machine—	Beige

Harmony No. 6

Wall—	Wellington Buff
Dado—	Brown
Machine—	Medium Green

Harmony No. 8

Wall—	Midland Green
Dado—	Medium Green
Machine—	Silver Gray

Resolution Adopted by Southern States Industrial Council

WHEREAS, On humanitarian grounds alone the Council favors the continuance of foreign relief shipments for another crop year to ameliorate proven existing hunger and malnutrition abroad, such relief to be kept within the reasonable ability of our country to supply and administered under appropriate safeguards; and

WHEREAS, With or without American aid, any program for the economic rehabilitation of Europe is foredoomed to failure unless and until the people of Britain, France, Italy, and other claimant nations are provided with additional incentives to work, produce, save, and invest, which incentives, in the opinion of this Board, are available only under a system of Free Enterprise; and

WHEREAS, The causes of human freedom, peace, and world recovery cannot be usefully served by the further dissipation of our resources in futile efforts to shore up and strengthen unworkable Socialistic experiments in government abroad; and

WHEREAS, Such efforts have been, are, and will continue to be highly inflationary:

RESOLVED,

1. That the Council favors the administration of the temporary relief program hereinbefore referred to by the American Red Cross, with relief food and other goods being distributed directly to the people in need and with full attendant publicity as to the source of all such relief;

2. That, while freely according to the people of Britain, France, Italy, and other nations the right to have any form of government they may choose, the Council also reaffirms the right of the people of this country to withhold subsidies to foreign governments;

3. That, in the opinion of this Board, the appropriation of additional sums for the economic rehabilitation of countries having a collectivist form of government would be a waste of the tax payer's money in that it would not accomplish any of the desirable purposes currently urged in support of such a program.

FURTHER RESOLVED, That a copy of this Resolution be sent to the President of the United States and to each member of Congress.

Letters

October 25, 1947

EDITOR, MANUFACTURERS RECORD:

Upon receipt of your recent memorandum inviting manufacturers to submit news regarding their new products, improvements and catalogues, I thought that I might send you some account of our services in event this should interest some of your readers.

While we do not manufacture anything, we do offer manufacturers a service which is becoming more and more important as the South turns to finished goods. We find this especially true here in Birmingham where in recent years much of our steel is being turned into consumers' articles such as electric irons, toasters, freezers and other items where attractive and durable plating is required.

We naturally follow with keen interest all those whose efforts are directed toward making a finished product from our raw materials and it has been gratifying and surprising to see such a growth along these lines during the war and post-war years. This especially among smaller concerns who found that they could produce as well as their northern brothers when given the orders. And this brings me to the point or question we always ask, "Why isn't this (whatsit) made here in the South," whereas the real question should become "Why isn't this thing SOLD by the South?" Then the orders would be placed here and a lot of die makers, fabricators and platers might give us the diversification necessary for a sound Southern economy.

Sincerely yours,

(Signed) E. R. HAUSER,
President, Metalplate Company.

(*More on page* 64)

Letters

November 10, 1947

EDITOR, MANUFACTURERS RECORD:

Before leaving on another speaking tour, our President, Mr. Earl Bunting, asked me to acknowledge receipt of your letter of November 4 and to tell you that he had read the editorial in your November issue with a great deal of interest.

He also suggested that I tell you of his reaction—a feeling of encouragement and gratitude that the MANUFACTURERS RECORD has seen fit to convey to its many readers a simple and clear analysis of the true role of business as an exponent of all that we know as America.

Sincerely yours,
HOLCOMBE PARKES,
Vice President in charge of
Public Relations,
National Association of Manufacturers.

November 5, 1947

EDITOR, MANUFACTURERS RECORD:

Your editorial, "Business — Exponent of America," is an excellent defense of all businessmen against their detractors. It has been most unfortunate that the country has been divided up into mutually suspicious segments. Businessmen constitute an important part of the economy—but not the only important part, as most of them will recognize. I hope the time will come when the various segments of our economy, and the various groups of our people, will cease hurling stones at each other, recognize that they are all parts of a system that benefits all, and work together for the development of our resources and the further elevation of our living standards.

Sincerely yours,
RALPH BRADFORD,
Executive Vice President,
Chamber of Commerce of the United
States of America.

October 31, 1947

EDITOR, MANUFACTURERS RECORD:

Your October issue containing a very fine spread on the Port of Houston has just been received in this office and in behalf of the Port authorities I wish to express our very great appreciation for the excellent article and photograph which you published. In this otherwise very excellent article, the basic material for which was furnished by this office through the Publicity Department of the Chamber of Commerce, there is one factual error which has been called to our attention. In the paragraph on Page 64, beginning "Seven Deep Water Wharves . . ." this sentence appears, "In addition Manchester Terminal corporation will provide two new berths to supplement their present one, at a cost to them of $800,000. Still another wharf will be rehabilitated at a cost of $400,000." These improvements are to be made by the Navigation District on a piece of property at Manchester owned by them and not connected in any way with Manchester Terminal Corporation. Manchester Terminal Corporation does not, at this time, contemplate an extensive expansion program.

The Manchester Terminal officials like all other port interests, were delighted by the publication of the article. The article you carried was comprehensive and with this one exception, wholly authoritative.

Sincerely,
MAX H. JACOBS,
Director of Information,
Houston Port and Traffic Bureau, Inc.

Tennessean to Command Marines

Maj. Gen. Clifton B. Cates, at present commanding general of the Marine Corps base at Quantico, has been named Commandant of the postwar corps of 108,000 officers and men, to succeed General A. A. Vandegrift. He will be promoted to a four star general when he takes over his new duties on January 1, 1948.

General Cates was born 54 years ago, and comes from Tiptonville, Tenn. He joined the Marines "by accident" in 1917 when he was going to law school at the University of Tennessee. Someone had told him of an opening for Marine officers training, and although he did not know what the Marine Corps was, he decided to try for the opening anyway. During the first world war, as a second lieutenant with the second division, he distinguished himself in action and won the Navy Cross, the Distinguished Service Cross, and two Purple Hearts in recognition of seven wounds. In the past war, he was put in command of the First Marine Division for the Guadalcanal campaign, and stayed through that battle until the end. Later he was ordered to assume command of the fourth Division during its attack on Saipan and Tinian, and later led that group on to Iwo Jima and remained with the division until its deactivation late in 1945. He was then ordered to Quantico. In peacetime he has served in China, aboard ship, and at various schools and stations in this country.

Employers Insurance Starts Bond, Burglary Departments

Employers Insurance Company of Alabama, which this year is celebrating its 25th anniversary, has added departments for fidelity and surety bonds for Alabama and burglary insurance for Alabama, Florida, Georgia and Tennessee.

L. W. Porter will head the new department. Engaged in this line of insurance for thirty years, Mr. Porter, was formerly vice-president of Ed. S. Moore, Inc., of Birmingham. Official bonds, guaranty bonds, forgery and burglary insurance policies will be written in addition to the wide variety of lines that have built up the company's large business.

Wm. H. Hoover is president of Employers Insurance Company. Recently a subsidiary company was formed to carry on a life insurance business and today more than $5,000,000 in policies is in force.

"Almost" A New Business Science

(*Continued from page* 40)

ment sufficient for peak demands?

g. Is your materials handling procedure properly organized?

h. Do you have to use skilled labor to assist in materials handling operations at certain times?

i. Are certain of your materials lost or misplaced in storage, causing unexpected material shortages?

j. Do you have many injuries to workmen caused by materials handling?

k. Do you have complaints from workmen about working conditions and facilities?

l. Do you have periodical decreases in production in certain departments?

m. Are there unexplainable increases in costs of certain operations?

Remember, mechanical handling will lower your plant accident rate.

2. Does material flow smoothly from one operation to the next?
3. Are there any unavoidable delays that keep workmen from producing?
4. Is there a logical reason for delays, such as:
   a. Breakdown of equipment
   b. Lack of supplies
   c. Overloading of facilities for certain operations
   d. Lack of efficient workmen
   e. Lack of handling equipment
   f. Loss of product due to damaged materials

Remember, proper handling equipment will reduce damage to materials and product.

The foregoing questions when answered should help you determine whether or not there is a need for improved materials handling procedure in your organization. Another method of analyzing your problems would be to make careful "on the spot" observations in the various departments of your plant. Take a trip through your factory and check the following conditions:

1. Is your material stored in an orderly manner?
2. Are your floors crowded unduly?
3. Are there any transportation "bottlenecks" and unsafe working conditions?
4. Is there a "haphazard" arrangement in your storeroom?
5. Is any handling done by highly skilled workmen?
6. Have you observed any broken or damaged products caused by handling?
7. Is there any operation of handling that requires a large number of men which should be employed to do productive work?
8. Are you taking advantage of your floor space by stocking materials to the maximum ceiling height?

Remember, proper materials handling equipment can eliminate manual handling operations and free workmen for productive operations.

In making your "on the spot" observations, examine carefully and critically every handling operation. Manual handling operations can, with few exceptions, be eliminated by using efficient mechanical tools. All such specialized handling equipment will pay big dividends in lower accident rates, increased production, better products and decreased costs.

When making your "on the spot" observations, you should make careful notes of everything you see that might have a bearing on your materials handling costs. If a trip through your plant disclosed any operations or conditions where your methods of handling could be improved, it is possible that a more thorough analysis will not only bring additional facts to light but will also enable you to work out a satisfactory solution.

Attack the problem systematically. Break down all operations into the simplest possible elements and analyze each possible source of trouble separately. Get all of the pertinent facts and then concentrate upon the solution.

Analyze Each Handling Operation

The following basic determinations should be made for each handling operation:

1. What types of materials are handled?
2. What is the weight of the package?
3. What is the size of the package?
4. Are the loads handled on pallets or bolsters?
5. What are the points between which the load is moved?
6. How far is the haul?
7. Is the route direct?
8. Can the distance be shortened?
9. How frequently is the movement?
10. How much manual labor is involved?
11. How many man hours are required?
12. What equipment is employed?
13. Does this movement effect production?
14. What is the rate of consumption or output in this department?
15. What is the rate of consumption or output by machines?
16. How much increase in production will an improved handling method make possible?
17. How will this increase in production effect your overall production?
18. Will the new handling method enable you to load or unload more cars or trucks per day?
19. Will your present production setup require this increase?
20. Will new handling methods in this department reduce your overall costs?
21. Will new handling methods aid you in making better use of your storage space?
22. Can you conserve valuable floor space by rearrangement and classification of fast and slow moving materials?
23. By rearranging the various classifications, can you make frequently used materials more readily available?
24. By the use of fork lift trucks, can

(*Continued on page* 76)

Economic Lot Sizes in Manufacturing

(*Continued from page 42*)

lot without materially increasing total unit charges. As is so often the case, they had thought it was necessary to manufacture in much larger lots than was really desirable. Because of other considerations the minimum lot size was set at 100 pieces per lot for this product.

The economic lot size was found to be 40 and 89 pieces per lot respectively for consumption rates of 3 and 15 pieces per day.

Example IV

$S = \$4.96$
$P = 200$ pieces per day
$U = 7$ pieces per day
$N = 300$ days per year
$C = \$1.97$
$A = \$1.23$
$(B + I) = 20$ per cent per year

$(1 - \frac{U}{P}) = 0.965$, and was considered to be unity.

$$K = \frac{0.2\ (1.97) + 1.23}{2\ (300)\ (7)} = \$0.000387$$

$$Q_e = \sqrt{\frac{4.96}{0.000387}} = 113 \text{ pieces per lot}$$

Table IV shows the relationship between lot size and total unit charges for this product. The economic lot size was found to be 74 and 165 pieces per lot respectively for consumption rates of 3 and 15 pieces per day.

Discussion of Examples I to IV

Some of the formulas that have been suggested for determining economic lot sizes either omit altogether the charge for rental of storage space or attempt to combine in a single factor charges for capital tied up in finished inventory and for rental of storage space. An examination of the data in Examples I to IV will show the importance of considering rental of storage space and also of separating this charge from the charge for use of capital. In Examples I and II the charge for use of capital was about twice as important as the space charge, in Example III the charge for use of capital was somewhat less important than the space charge, in Example IV the charge for use of capital was only about one-third as important as the space charge.

Summary

The economic lot size problem was discussed in a general way in the first article of this series which was published in our October issue. The reader is urged to read that article again in the light of what has been said in more specific terms in the second and third articles of the series.

There can be no doubt that the economic lot size problem is becoming more and more important as greater and greater mechanization increases the relative importance of preparation or set-up charges. Nevertheless, lot sizes should not be made as large as possible, in order to reduce to a minimum the unit preparation charges, but rather should be made as small as is economically sound, in order to reduce the capital tied up in finished inventory, to obtain a high rate of capital turnover, and to reduce the risks incident to storage.

Finally, those managements faced with the common present problem of limited working capital resources should remember that capital tied up in finished inventory varies directly with the lot size; also that lot sizes can often be made much less than the economic lot size without greatly incerasing the total unit charges of manufacture and storage. These facts often open up great possibilities for reducing working capital requirements.

"Real Russian Challenge" Discussed in Booklet

In "The Real Russian Challenge," a recent booklet published by the Institute of Foreign Trade, J. Anthony Marcus, president, presents his thoughts on the current and important problem of our relations with Russia. He has traveled extensively in Russia in various capacities for twenty odd years, and is thereby qualified to speak on the subject it would seem. His opinions, based on common sense, are presented well. He is a reluctant critic because he is quick to admit that he admires the Russians as an ethnic group.

His booklet is divided into three sections: In the first he attempts to explain what makes the Russians "tick." In the second, he discusses the question of whether or not the Russians have the right idea as to what makes the Americans "tick," and in the final section of this 31-page book, he sets down a few well chosen words of warnings directed to all concerned. He defends the American position today, and bluntly states that he believes that there is room on this earth for all peoples to live as they see fit so long as no one group attempts to override the other against its wishes, and he points out the American tradition of supporting those who earnestly desire and seek to live under free democratic institutions.

Table IV

Q	$\frac{S}{Q}$	C	KQ	V
50	$0.099	$1.97	$0.019	$2.088
100	0.050	1.97	0.039	2.059
113	0.044	1.97	0.044	2.058
200	0.025	1.97	0.077	2.072

Boiler Plant Team Work

(*Continued from page* 38)

tle influenced by the war—is largely the result of a warm employer-employe relationship. In a period of bitter industrial strife, things are so pleasant at the boiler works that the company signs most of its contracts with the hard-boiled AFL Boilermakers' Union in less than 15 minutes.

Last year in celebration of the firm's fiftieth anniversary members of that union joined with the firm's office employees, who don't belong to a union, to give Nooter a testimonial dinner. Speaking at that affair, Charles J. MacGowan, international president of the Boilermakers' Union, had this to say:

"The humane and understanding policy of the management of this company has generated the soundest confidence on the part of the workers toward the employer. Industrial problems are resolved across the conference table in give and take fashion and when conclusions are reached, all parties are satisfied and the bargains are kept.

"It should not be understood that the management of this plant is paternalistic or that it plays favorites; on the contrary, they are hard-headed business men, but actuated with a spirit of absolute fairness, with the result that the men employed always give their very best and are ever on the alert to reduce production costs and to increase total productivity.

"In a word, it is a shining example of first-class industrial teamwork."

Robert J. Ryan, 42-year-old vice president and general manager of Nooter, joined the company as an office boy when he was 19. He doesn't pretend to be a philanthropist. But he is convinced the best way to make money is by increasing efficiency, and the best way to increase efficiency is by recognizing that every worker is a human being.

This philosophy is reflected in the boiler works' labor program, which includes the following planks:

1. Year-end bonuses which average $300 to $400 per worker.
2. A union shop and corresponding wages and hours for office employes.
3. Awards up to $300 for worthwhile labor or money saving suggestions.
4. An information program which keeps workers up to date on conditions facing the business.
5. Financial aid to deserving employes when necessary.
6. A $1000 gift life insurance policy for each employe who has been with the company one year.
7. A pension plan for employes of five years or more.
8. An extensive recreational and social program.
9. An "advice bureau," where an employe may obtain counsel on everything from buying a house to reconciliation with his wife.

The company, a run-of-the-mill boiler works for many years, was founded in 1896 by John Nooter, a Dutch immigrant. It struggled along, taking no more than a cursory interest in its employes, until

(*Continued on page* 72)

Boiler Plant Teamwork

(*Continued from page* 70)

1935. That year, although it still had an open shop, the company gave substantial bonuses to its employes and met union working conditions.

Three years later, Nooter decided to accept a closed shop. President Elmer Nooter and Vice President Ryan discussed this for weeks. They agreed if they were going to have a union in their plant it might as well be a good one. Ryan expresses it this way:

"We assumed that the men and their representatives were honest, and we knew that we were. We have had no reason to change that opinion in the nine years since."

Nooter makes it a point to keep its workers informed of the company's operations during the year and of its plans for the future. Says Ryan:

"It is my firm conviction that the average worker simply has no conception of management's problems, and the reverse is true, although to a somewhat lesser degree. We make every effort to give the men the complete picture of the company's activities. We have found them always reasonable if they understand the situation."

The day before Christmas each year Ryan goes out into the shop to talk with the employes at a mass meeting. Last year he explained the plant was becoming overcrowded and ought to be expanded. He said such an expansion would mean better wages and larger bonuses. He pointed out, however, it would cost $300,000 and told the men some people were of the opinion it would be a foolish move as a result of labor unrest.

"I asked the employes point-blank whether it would be wise for us to borrow the money in view of the tangled labor situation," Ryan said. "There was a spontaneous roar of approval. Then we knew they were on our side and we had nothing to fear."

Nooter workers are constantly encouraged to submit ideas that will save time and money. A committee of foremen studies each proposal. If they find it new and worthwhile, the originator is given a cash award, based on the value of the suggestion. If it works out better than anticipated, he gets additional money.

Winners of these awards are announced in the company's magazine, "The Boilermaker." This well-edited and smartly-printed house organ also carries news of the firm's operations and personal notes about employes, such as births, marriages and birthdays.

Nooter's interest in its workers doesn't stop at the plant gates.

For instance, one man, who had been with the firm a short time, was in the hospital for a year. The company paid his bill and took care of his family. And he got another job at Nooter when he was cured. Other workers in financial trouble have received loans from the firm up to $500. If a man appears to be ill, the company will pay for a $50 to $100 medical checkup.

Everyone at the boiler works is urged to have contact with the company in ways other than work. Elmer Nooter, Ryan and other officers participate in golf tournaments. Nooter and Ryan formerly played on the company's baseball team. The whole plant usually turns out for picnics, dances and other social activities.

A new employe is introduced to the company the day he enters the plant. He is given a pamphlet titled, "The Folks at Nooter Welcome You." It contains information about insurance and other benefits as well as a statement on company policy which reads in part:

"We want to take care of our injured men promptly and give them the best medical care they can get. If you are not getting this at any time, report to the main office. You are entitled to the best. If you have any health or financial problems, we shall be glad to confer with you and attempt to give you advice if this is possible."

Nooter's latest contribution to its employes, the "worry room," is a quiet cubicle with a double window, three chairs, a table and a drafting board. It has no telephone and when an employe is in it he is "out" to callers and fellow workers. The room is operated on the principle first come, first served, and no time limit is set on its occupancy. Three employes are allowed in the room at the same time, but no conversation is permitted.

Heat Rate at West Virginia Plant Better Than Anywhere Says Engineer

The power plant being erected at Graham Station, W. Va., will incorporate a better heat rate than any steam-electric unit up to the present time. According to Philip Sporn, American Gas and Electric Service Corp. president after whom the plant is named, a net plant heat rate of 9,270 British thermal units per net kilowatt-hour output is expected with a boiler efficiency of 90 per cent. The total heat input of 1,300,000,000 Btu per hour to produce 150,000-kilowatt gross generation will make the boilers among the largest, if not the largest in the world.

New and Expanding Plants

(*Continued from page* 14)

tric Cooperative, headquarters facilities, and 41 miles of lines.

FORT WORTH—Ernest Allen Motor Co., auto repair and showroom.

FORT WORTH—St. Louis Waste Materials Co., office and warehouse, Calhoun and Broadway.

GALVESTON—Galveston Electric Co., office and garage, 20th St. and Ave. I, $222,950.

GIDDINGS — Lower Colorado River Cooperative, improvements and 288 miles of lines, $400,000.

GOOSE CREEK—Southwestern Associated Telephone Co., service building.

GROSEBECK—Limestone County Electric Cooperative, 242 miles of lines, $39,284.

HEREFORD—Deaf Smith County Electric Cooperative, 193 miles of lines, $350,000.

HENRIETTA—L. E. Dickerson, addition, $20,000.

HONDO—Medina Electric Cooperative, improvements and 9 miles of lines, $185,000.

HOUSTON—Cook Paint and Varnish Co., plant, Crockett and Oliver Sts.

HOUSTON—General Foods Corp., expansion program at Maxwell House plant, 3906 Harrisburg.

HOUSTON—Gulf Chemical Co., warehouse, $78,426.

HOUSTON—Gulf Oil Corp., service station, Wayside and Lawndale Sts.

HOUSTON — Hargis Motor Co., motor building, Leeland and Louisiana Ave.

HOUSTON—Carlos V. Helander, auto service station, Richmond Rd. and Rice Blvd., $18,000.

HOUSTON — Houston Natural Gas Corp., warehouse and service headquarters, $300,000.

HOUSTON — Lone Star Bag and Bagging Co., administration building, 2216 Dumble Rd.

HOUSTON — Lydick Roofing Co., warehouse, $50,000.

HOUSTON—Missouri, Kansas, Texas R. R., gondola car building program.

HOUSTON—Oil Center Tool Co., engineering and research building, $50,000.

HOUSTON — Parker Bedding Co., factory building, 1109 Vine St., $18,000.

HOUSTON—Starr Electric Co., two-story building, corner Capitol and Crawford.

HOUSTON — Southwestern Engraving Co., office building and manufacturing plant, $200,000.

HOUSTON — Superior Furniture Manufacturing Co., warehouse, between Jackson and Gable Sts., $35,000.

HOUSTON — Tennessee Gas Transmission Co., pipeline expansion program.

JOHNSON CITY—Pedernales Electric Cooperative, 153 miles of lines, $215,000.

KENNEDY — Archer-Daniels-Midland Co., flaxseed processing plant.

LITTLEFIELD — Lamb County Electric Cooperative, Inc., 90 miles of lines, $20,718.

LONGVIEW—Southwestern Gas and Electric Co., power plant on Lake Cherokee.

LUBBOCK — Scoggin-Dickey Motor Co., sales and service building.

MARSHALL — Panola-Harrison Electric Cooperative, 98 miles of lines, $100,000.

McGREGOR — McLennen County Electric Cooperative, commercial building, $57,000.

MULESHOE — Bailey County Electric Cooperative, 94.3 miles of lines.

NACOGDOCHES — Brodie Canning Co., canning plant.

NACOGDOCHES—Coca-Cola Co., one-story bottling plant.

NIXON—A. M. Marrou, one-story building with lounges, display rooms.

PARIS — Lamar County Electric Cooperative Association, 216 miles of rural lines in Lamar, Red River and Delta counties.

ROBSTOWN—Nueces County Cooperative, 184.1 miles of rural lines in Well, Kleburg and Nueces counties.

ROBSTOWN — Sinclair Oil and Refining Co., one-story service station, $30,000.

ROBY—Midwest Electric Cooperative, Inc., 178.5 miles of lines, $38,831.

ROSENBERG—Houston Light and Power Co., service center building.

SAN ANGELO—W. B. Groseclose, one-story office building, 110 E. Twohig Ave., $22,000.

SAN ANTONIO—Delaware Punch Co., extension to warehouse.

SAN ANTONIO—Howard Campbell, garage and repair shop building., Ashby and Blanco Rds.

SAN ANTONIO — Harper Bros., dairy, foundation for proposed dairy building.

SAN ANTONIO — Richter's Bakery, 2201 Broadway, addition, $51,487.

SAN ANTONIO—San Fernando Archdiocesan Cemetery, garage and storage building, $23,861.

SAN ANTONIO — Southwest Feeders Supply Co., building with basement and mezzanine, S. Flores St. at La Chappelle St.

SAN ANTONIO — Swift and Co., building improvements, 1900 blk. S. San Marcos St.

SAN ANTONIO — Travis-St. Mary's Corp., new feeders and replacement of panel boards, $12,000.

SAN AUGUSTINE — Deep East Texas Electric Cooperative, Inc., 135 mi. of line, $35,910.

SHERMAN—Quaker Oats Co., warehouse.

STAMFORD — Stamford Electric Cooperative, 58 miles of lines, $100,000.

STEPHENVILLE — Erath Electric Cooperative Association, 178 miles of line, $39,907.

TAHOKA — Lyntegar Electric Cooperative, system improvements, and 285 miles of lines, $334,000.

TEMPLE — Coca-Cola Bottling Co., two-story building.

TYLER — Humble Oil and Refining Co., office building addition, 719 Front St., $93,000.

VICTORIA — Hoffman Motor and Generator Sales and Service, commercial building.

WACO—Southwestern Bell Telephone Co., additions and alterations to building.

WACO — Texas Meter Device Co., office building, 1524 N. 15th St., $16,000.

WACO—Morris Miller, packing plant, $46,657.

WEATHERFORD — Hughes Chevrolet Co., auto sales and service building.

VIRGINIA

BEDFORD—Virginia Rubatex Division of Great American Industries, plant and office buildings, $668,000.

BOWLING GREEN — Virginia Electric Cooperative, 205 miles of line, $36,749.

CHARLOTTESVILLE — Charlottesville Woolen Mills, additions to plant.

HOPEWELL — Chesapeake and Potomac Telephone Co., addition to telephone building.

LAWRENCEVILLE — Home Telephone and Telegraph Co., exchange, 400 N. Main St.

LEESBURG — Coca-Cola Bottling Co., bottling plant.

LYNCHBURG — Philadelphia Gear Works, Inc., branch plant on Kemper St.

NEWPORT NEWS — Asheville Mica Co., foundations and factory buildings, $103,000.

NEWPORT NEWS — Harwood Construction Co., Greyhound bus terminal.

NORFOLK — Commonwealth Natural Gas Corp., 537-mile pipe line from West Bend, Ky. to Norfolk, $29,522,100.

NORFOLK — Virginian Railway, 2500 coal cars, $1,500,000.

RICHMOND — Chesapeake and Potomac Telephone Co., telephone expansions, $5,000,000.

ROANOKE — Appalachian Electric Power Co., construction program, $64,850,000.

SUFFOLK — Community Electric Cooperative, system improvements and 47 miles of lines, $275,000.

WAYNESBORO — E. I. duPont de Nemours & Co., spineret and guide laboratory.

WAYNESBORO — R. H. Wampler, paint manufacturing plant, along Chesapeake and Ohio Railroad tracks on Ohio St.

WEST VIRGINIA

BLUEFIELD — J. B. Belcher Lumber Co., rebuilding of burned plant on the north side.

CHARLESTON — Charleston Motors, Inc., business building, Washington and Broad Sts. $250,000.

CHARLESTON — Elk Refining Co., service station, 1110 Washington St. E., $40,000.

MARTINSBURG—Chesapeake and Potomac Telephone Co., office building at corner of Burke and Spring Sts., $334,000.

PROPOSALS

Bids December 18

Bids for Power Transformers and Switching Equipment.—Vicksburg District, Corps of Engineers, P. O. Box 60, Vicksburg, Mississippi.—Sealed bids will be received here until 11:00 a.m., C. S. T., 18 December 1947, and then opened, for the design, manufacture, testing, and delivery f.o.b. railroad cars at Nashville, Howard County, Arkansas, of transformers, oil circuit breakers, lightning arresters, and disconnecting and grounding switches, and to furnish services of erecting engineers, Narrows Dam power plant, Little Missouri River, near Murfreesboro, Pike County, Arkansas. Further information on application.

Bids December 18

Bids for Station Power and Control Equipment.—Vicksburg District, Corps of Engineers, P. O. Box 60, Vicksburg, Mississippi. —Sealed bids will be received here until 11:00 a.m., C. S. T., 18 December 1947, and then opened, for the design, manufacture, testing, and delivery f.o.b. railroad cars at Nashville, Howard County, Arkansas, of station power and control equipment, and to furnish the services of erecting engineers, for Narrows Dam power plant, Little Missouri River, near Murfreesboro, Pike County, Arkansas, Further information on application.

New Business Science

(*Continued from page 66*)

you take greater advantage of overhead storage space?

The standardization of package sizes and weights and use of a "unit load" is perhaps the most important determination that must be made. Certain materials can generally be handled more efficiently and with less damage if grouped in larger or smaller units. Much time can often be saved and damage eliminated by handling several packages in a unit than by handling each package separately. Certain types of commodities can often be handled easier and quicker if placed on pallets, bolsters, cradles, skid boxes, special containers, etc. Very often the type of container will have to be specially designed to suit the particular size and shape of the product to be handled.

Very often the use of steel strapped or wire bound containers, for example, will not only help effect savings in handling time and costs, but may also reduce breakage, lower shipping costs, and permit stacking or tiering.

Where such steel strapped packages can be handled without breaking bulk to the ultimate destination, your products will reach the customer with less damage.

Potomac Soundings

(*Continued from page 22*)

longer. The reason is beyond our control. The goods to supply it are not at hand, and can't be produced in the next five years. Our total industrial employment now is considerably above the wartime peak. Yet we suffer acute shortages of labor, material and transport in every basic line.

We may once more declare a notable intention by promising more than we can deliver. But the margin of our nobility, in that event, will be, in the end, the actual measure of our debacle in inflation.

It is time for hard heads and honest intellects to come to grips with this urgent problem of national survival.

National planners got us into this mess. But they won't get us out of it.

The CIO sharpers who do the thinking for Henry Wallace can't talk us out of our new dilemma.

Employer Training

(*Continued from page 39*)

workers but my people are all experienced and know their jobs." In answer to this let us raise the following questions.

1. Specifically what jobs does each man know?
2. What happens in transferring men from one job or department to another?
3. Are men progressing or standing still in regards to learning new jobs?
4. What justification is there for upgrading?
5. What of the new jobs involving new materials, changed specifications and new machines?
6. What happens as procedures and methods are modernized?
7. Is fundamental knowledge taken for granted?

A continuation of Mr. Arter's discussion on the subject of industrial employee training will be published in a subsequent issue of Manufacturers Record.